



A Building of Living Stones

A Community Service Centre for Mamelodi East

Imaginative architecture always lifts a man's soul to new heights and interesting public buildings give constant pleasure to thousands of people. (Fassler 1955:32)

My kindness is all you need. My power is strongest when you are weak.

2 Corinthians 12:9

This document is dedicated with a grateful heart to:

God, without whom nothing is possible

My family, for their endless kindness and support

All the family and friends that so generously contributed their time and assistance

Jarred Kidgell and my friends for their patience

The Author would like to thank:

Prof. K.A. Bakker, A. Barker and I. Breed

for their wisdom and advice

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November 2010

Submitted as part of the requirement for MArch (Prof)
Faculty of Engineering, Built Environment and Information Technology
University of Pretoria
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Abstract

This thesis aims to, from the perspective of architecture and urban place making, examine the potential of a church as a catalytic nodal public building and its corresponding potential to serve and uplift its community through both secular and religious functions.

The church itself is nothing other than 'the gathered congregation' in a particular place at a particular time. (Moltman 1999:201)

It is following this statement that the validity of merely embracing the typology of a building designed for given liturgy is questioned. This thesis hypothesises that all spaces that foster community meeting and ritual have the potential to become 'church', additionally that: in a Christian based spatial configuration, spaces that facilitate this 'church' to occur are also sacred spaces.

Proposed Site Address Road Reserve R/63 &
Franspoort 332-Jr, erf 33033

Main Function Non-denomonational Christian Church

Research Field Heritage & Cultural Landscapes

Definitions

The Church:

The body of Christian Believers.

The church itself is nothing other than 'the gathered congregation' in a particular place at a particular time. (Moltman 1999:201)

The church:

A structure to house the Church.

RDP:

Reconstruction and Development Programme. housing built under the capital subsidy scheme, either individual or project-linked subsidies. RDP is characterised by large scale housing delivery, typically of a free-standing nature on individual erven. Typical RDP settlements are located on the periphery of town due to lower land costs.

Social Housing Foundation (2009)

SBAT

The Sustainable Building Assessment Tool.

CSIR (2008)

Service Centre:

A community facility, which provides a variety of special services to citizens. It is intended especially to help solve some of the problems of low income communities.

(Alexander et al., 1968:1)

ZCC:

Zion Christian Church.

Zozo Shack:

Informal dwelling often constructed from found materials.

Delimitations

This thesis is dealing with understanding the religious and secular needs of a specific underprivileged, predominantly Christian community in a Township of Tshwane. The intervention that results from the design and insertion of a public building that responds to a component of that local community's religious and secular needs.

Although the intervention departs from the tenants and values of a Christian epistemology world view; it will not be aimed at any specific denomination.

If you are going to build a Church
You are going to create a thing which speaks.
It will speak of meanings, and of values,
And it will go on speaking.
And if it speaks of the wrong values
It will go on destroying.
There is responsibility here.

[MAGUIRE 1962: 33]



Chapter 1

Introduction & Background

Brief & Aim

Client

Introduction & Background

Immense challenges are faced by contemporary South African designers designing for the post Apartheid environment. South African cities are often characterised by patterns of fragmentation and extreme low density sprawl, Stals (1998: 4). Marcuse & van Kempen (2000:3) describe the layout in these cities as a

...pattern of separate clusters of residential spaces, creating protective citadels and enclaves on one side, and constraining ghettos to the other in a hierarchical relationship to each other.

Stals (1998) continues to say that, because of the displacement of the poor to the urban edges due to the legacy of the apartheid system and because of the fact that the majority of new urban growth is happening amongst those who are most impoverished, increasing numbers of people are living on the urban edges.

In the average South African city one can almost always find two separate social structures existing side by side. The spaces associated with these social structures also remain detached into their own "envelopes and enclaves" (Murray 2006:6).

Alison Todes (2003:109) notes that the 'large dormitory townships', such as in Mamelodi, which lie on the urban edges of the South African cities and towns, enforce considerable costs in terms of transport and travel, which only serve to marginalise their inhabitants from urban opportunities. This is especially true of Mamelodi East, where the inhabitants experience a lack of basic services, community facilities and low standards of housing- the common typologies being informal 'zozo' and RDP houses.

Todes (2003:111) concludes that this separation has:

...resulted in sterile environments with poor services and facilities and has undermined small-scale economic activity.

The planning of the Apartheid City, in which the townships played a crucial role in asserting hierarchical dominance of the ruling class, was similar to that of the colonialists for which, AlSayyad points out that the planning and design of urban spaces clearly illustrates the intentions of the governing power:

Analysis of the forms of dominance deployed in colonial cities may point the way to a better understanding of the power of architecture and urbanism in general. In particular we may see that, while politics necessarily plays a role in architectural and urban form through the choice of goals, styles and techniques, it is not the specifics but the implementation of such a program that is all important. And in all colonial cities that relationship between the dominator and the dominated are clear, as are the political agendas and motivations behind it. (1992:5)

In the field of architecture, public buildings have the ability to work both with the built fabric and the community as they are, communicating what they have the potential to become.

The architect is also an interpreter of values and aspirations in a culture, and because of the life span of the built environment, thereby contributes in a significant way to a society's present and future self-perception. (Holden 1995:14)

Architects have the ability to spark change and possibility, especially within communities that have been marginalised as a direct result of a legacy of social fragmentation.

'Architecture always reflects the society it serves', the ultimate question remains what kind of society, what kind of future South Africa do we want to create? (Marschall & Kearney 2000:182)

This thesis proposes to examine the catalytic ability of nodal public buildings that provide social services in order to promote healthy urban and social transformation through empowering the communities they serve.

It is intended that the proposed intervention houses many diverse social service oriented functions required in a specific locale, and that will facilitate community empowerment and the strengthening of existing communal bonds.

Brief & Aim

Client

Brief & Aim

Client

The make-up of Tshwane should rather be understood within the context of a polycentric (multi-nodal) metropolitan region. (The City of Tshwane 2007: 10)

The site is located in an area in Mamelodi east, an area where social service provision is greatly lacking. The creation of a service based, catalytic nodal intervention seeks to facilitate the upliftment process within the community, as is programmed within the proposed Linear Nodal Development Framework. The study will present the diverse social service oriented functions that the proposed intervention must house, focused on both the spiritual and physical needs of a target community. This intervention must play a vital role in the growth of the people who use and contribute to its work, namely to facilitate community empowerment and strengthening of existing communal bonds. Additionally, the nature and role of a church as a place of facilitation and empowerment will also be explored.

It is important for designers to allow for supporting functions when designing religious buildings. Although historically churches were constantly open to the public to allow for those seeking spiritual guidance and contemplation to come and go freely, this function by itself is no longer sufficient to sustain such a diverse organisation. Churches are beginning to expand into secular functions in order to serve their communities and gain perceived usefulness.

Since today's religious buildings get used more than one day of the week, the architect is prompted to design his program with the day-to-day needs of the community in mind... an emphasis on secular and religious functions of the community ensures that the building will be used, that the neighbourhood is aware of its usefulness, and in a way, guarantees the longevity of the building itself... we know these buildings are serving their communities to the maximum capacity. (Thompson 1979: ix)

A multi-functional religious cum secular community empowerment centre would, by necessity, not have a single patron but would be a composite client that would work as a public-private partnership, comprising of government departmental bodies, the local municipality and Non- Governmental Organisations.

Some support and funding will be sourced from the World Bank, while the core funding will be sourced from the Victor Daitz foundation (a charitable foundation). The Tshwane Leadership Foundation, which works with both Churches and communities for urban transformation would facilitate and coordinate the energy behind the project. Additional funding and facilitation will come from relevant Governmental development initiatives.

The World Bank announced a plan to work more closely with Church groups in Africa to fight poverty and to 'break the conspiracy of silence on AIDS.' The Bank hopes to channel development resources through Church programs and to include churches in consultations on economic and social policy issues.

(The World Bank, Accessed 05 May 2010)

Through a partnership with the Departments of Social Development, Trade and Industry and Health and Education, the local government is able to support the development and upliftment of the community through service provision, education, opportunities and access to resources.

- Department of Health: instrumental in facilitating the implementation of a satellite clinic.
- Department of Basic Education: instrumental in facilitating the day care centre.
- Department of Trade and Industry: instrumental in facilitating the building and trade training.

The intervention will be a multi-functional development where religious institutions and groupings, in this case various Christian Churches and movements representing the demographic make-up of the community in Mamelodi East, will be supported in responding to specific community needs.



Chapter 2

The Church

Hypothesis & Research Methodology

What is the Church?

History of the Church Building

Church in Africa

The Church Based Service Centre

The Golden Rule

Conclusions

Resulting Architecture

The Church

Problem Statement

How should the structure of the church building be better adapted to address the social role of the Church?

The Church

Hypothesis & Research Methodology

The traditional, purpose built church typology, in South Africa, in terms of a single worship space or facilities catering for this single function, has become acontextual.

The church has begun to diversify their functions provided in order to maintain a connection with the communities that they serve, however the existing religious architecture is restrictive of function and thus limits the potential that a church could have.

The first step towards a church architecture for our time is to recognise that a Christian church is essentially a house for a community and that has no independent meaning apart from that community, (Hammond 1962:28).

Church is not a structure, it is the Christian people. Church may happen anywhere that Christian people gather and the basic function of the church building is to facilitate this congregation and its associated rituals. These rituals extend to all functions that foster community and are thus also to be considered as a sacred extension of Church.

Whilst probably all Christians would now agree that it is the people rather than the building which is the temple of God, debate still attaches itself to the meaning of sacred space and the sacramental attributes of objects and places, (Purdy 1991:11).

Furthermore Ephesians 2:20-22 reads

Built on the foundation of the apostles and prophets, with Christ Jesus himself as the chief cornerstone. In him the whole building is joined together and rises to become a holy temple in the Lord. And in him you too are being built together to become a dwelling in which God lives by his Spirit.

This Hypothesis will be explored under the following research questions:

- The Church:
 - What is the Church?
 - The history of the church building
 - Church in Africa
- The Church based service centre
- The golden rule of morality
- Conclusions about the resulting Architecture

What more could a Church be?

What should a Church be?

The resulting Church as a nodal Public Service Centre has the potential to begin to unify a fragmented community through its catalytic ability to promote an urban community that is socially and economically inclusive and based on sound moral guidance and communal strength.

Those who want Africa to walk tall amid 21st-century global competition must not kid themselves that providing the material means or even the knowhow that accompanies what we call development will make the change. A whole belief system must first be supplanted. And I'm afraid it has to be supplanted by another. Removing Christian evangelism from the African equation may leave the continent at the mercy of a malign fusion of Nike, the witch doctor, the mobile phone and the machete.

PARRIS M. 2008, accessed 18 July 2010.

The Church

What is the Church?

The Church as defined by the Encyclopædia Britannica as the Christian doctrine, the Christian religious community as a whole, or a body or organization of Christian believers. The word 'Church' comes from the Latin word "ecclesia", which in turn is from the Greek "qahal", and was translated as an assembly of citizens. In the Greek translation of the Old Testament (3rd–2nd century B.C.), the term ecclesia is used for the assembly of the Jewish people, especially when gathered for religious purposes, while in the New Testament it came to be used to describe the whole body of Christians. Today, the word Church has also extended to describing the building in which the Christian people worship.

Encyclopædia Britannica, Accessed 22 April 2010

To cities filled with homeless and impoverished, Christianity offered charity as well as hope. To cities filled with newcomers and strangers, Christianity offered an immediate basis for attachments. To cities filled with orphans and widows, Christianity provided a new and expanded sense of family. To cities torn by violent ethnic strife, Christianity offered a new basis for solidarity. To cities faced with epidemics, fire and earthquakes, Christianity offered effective nursing service." He concludes, "No wonder the early Christian missionaries were so warmly received in [Antioch]. For what they brought was not simply an urban movement, but a new culture capable of making life in Greco-Roman cities more tolerable, (Stark 1996:34).

Today these functions are more commonly carried out by a community centre; the churches are left with their preaching, their worship and their liturgy.

... aspects of spirituality no longer commonly form a shared experience in most communities as they did in centuries past, (Whitman 1995:24).

Historically the Church was at an important location in a town, shown in Fig.1, often one of the first landmarks to be laid out, terminating an axis; the contemporary Church finds its place in society increasingly marginalised, and its functions restricted.

The attitude of love displayed by Christians is why, what is described above cannot be a community centre; it is a church which should be at the functional centre of the Christian community.

The Church can assist here in a way which the local council cannot, (Cochrane 2008:20).

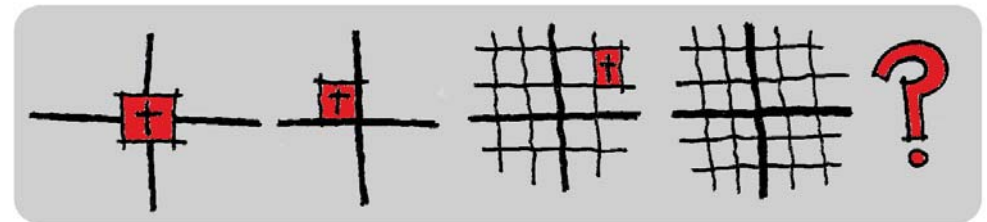


Fig.1. (by Author) Conceptual diagram showing the changes in the positioning of the church over time

The Church

History of the Church Building

The history of church building starts with the early Christian churches, the Western Roman (Catholic), Eastern Roman (Byzantine) and African (Coptic) orthodoxies, the first later opposed by the Protestant movements. This investigation will focus on the origins of church and the subsequent archetypal design that emerged.

In the beginning, the Christian believers were persecuted by, what they considered to be the pagan Roman Empire, they met in small groups in private homes, where they were forced to adapt worship to the space available to them. They would collect donations to help those in need and share a meal together to commemorate the Last Supper that Christ had shared with His disciples. The oldest known Church was found in Dura-Europus, Fig.2, which is today found on the Syrian-Iraqi border. This house was built in about 230 AD and was converted to be used as a Church between 231 and 232 AD, Fig.2. In converting the house two rooms were combined by removing a wall, while a baptistery was made by supporting a canopy on four columns, covering a small pool. (Roth 1998:242)

A century later the focus of the Roman Empire began to change, from the emphasis being on secular issues to those of religion.

Roman life focused on temporal comforts and pleasure, as the Roman bath illustrates well. The bath was designed to serve the needs of the body in its pools and exercise gardens, to feed the mind in its libraries, and to reward the eyes in its vast moulded spaces lined in multicoloured marble brought from the far corners of the Roman Empire. This emphasis of Roman life on the here and now, however was gradually replaced with a new concern for the hereafter through the influence of a new religion that reshaped the way Romans began to think about the world and themselves,(Roth 1998:239).

In 313 the Emperor Constantine issued the Edict of Milan embracing the Christian faith, giving it full equality with other religions of the Roman Empire. New building typologies were suddenly needed and the architectural innovations were focused on housing large groups of Christian worshippers indoors in a building typology that would work both functionally and symbolically for worship, facilitating the chanting of psalms and the spoken word (Roth 1998:243). Christianity differed from older pagan religions, where they predominantly practiced solitary worship and of-

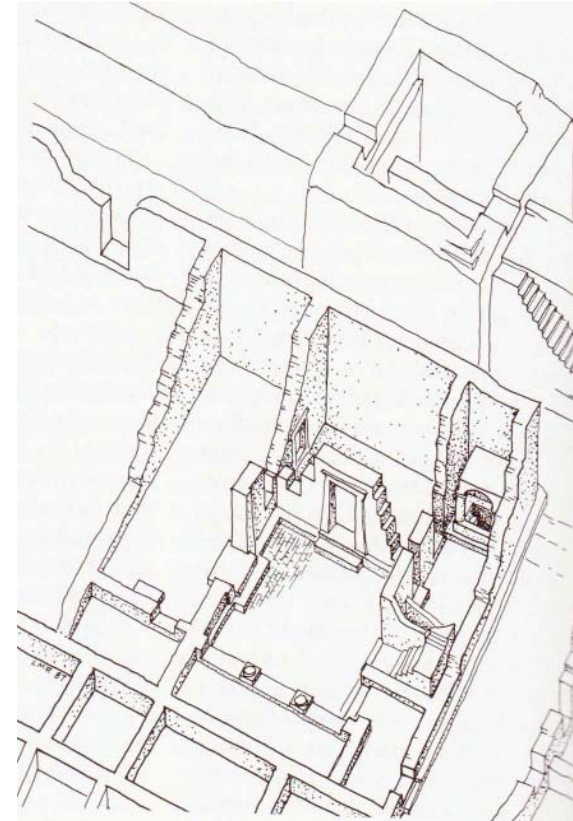


Fig.2. (Roth 1998:242) Christian Church, Dura-Europus , Syrian-Iraqi border 230-232 AD

ferings. Christianity is a congregational religion, involving a public service or liturgy, where the believers would come together as a body and share gifts and a meal.

As the Roman Empire was transformed into a Christian Empire, churches and other religious buildings emerged as the preeminent architecture, (Roth 1998:262).

To embody this new building typology Constantine and his officials looked to secular public buildings, specifically the basilica as it had originally been designed to house public gatherings. It also had a fitting positive symbolic connotation with fair administration of justice on earth. In order to convert a basilica into a church the small altar dedicated to the emperor would be replaced with one which could facilitate the ritual communal meal, or Eucharist, furthermore the basilica's axial plan would also serve to add focus to the altar,(Roth 1998:243).

Those external qualities of architecture that had appealed to a cultivated visual sensibility gradually were replaced by an architecture of simpler elements, fostering a sense of mysticism. The new architecture, with its shimmering interiors lined with mosaic and encrusted with gold, served to direct the mind away from its concerns with the here and now to life in the hereafter, (Roth 1998:239).

Thus the physical representation of Church began to shift from being a Church of people to an earthly representation of the House of God.

In its most simple form the argument revolves around the understanding of the buildings as the house of God (Domus Dei), in which a certain aura of sanctity should be established, or the more down to earth Domus Ecclesiae, the home of the Christian people, (Purdy 1991:11).

Conclusion:

Any space may be perceived as sacred through its use for sacred ritual and religious gatherings, furthermore the spiritual symbolism of horizontal and vertical elements are of great importance. As the Church is a gathering of a group of people and the church is a place to house this gathering in all the ways it requires- it is deemed that the horizontal elements gain greater relevance for the exploration of a contemporary South African church architecture.

Church in Africa

The discovery of the new world and the emergence of the slave trade meant that people native to the new lands were brought into contact with new belief systems that were enforced by the ruling peoples.

In Latin America, for instance, elements of Roman Catholicism were integrated with a number of slave cultures; religions such as Candomble, Voodoo and Santeria are examples of what emerged. (Ayodele 2008, accessed 18 October 2010)

This religious syncretism may be defined as:

The fusion of disparate religious principles and practices to create new, evolved religious philosophies. (Religiously Remapped. 2008. Accessed 18 October 2010)

Many African people might say that they follow a particular religion, it is well known that large numbers of these people also partake in the religious rites of multiple faiths, this may extend as far as religious syncretism. (Religiously Remapped. 2008. Accessed 18 October 2010)

These syncretic churches include the Coptic Church, St Johns, African Congregational and the Zion Christian Church (The ZCC), which has grown to large numbers and in many parts of South Africa has more followers than the Western Churches. Syncretic Churches speak to the people of Africa and have often diversified from 'Western Church' practices by absorbing elements of the local culture and traditions.

Before we became Christians, we were Africans, (Matsane 2004:4).

The graph, Fig.3 shows the total number recorded people that follow each major religion, derived from Census 2001 for the Tshwane Metropolitan Region.

The Zion Christian Church (ZCC) is South Africa's single biggest African Christian denomination. Today it is thought to number between two and six million people, who belong to over 4000 parishes. The ZCC followers can be identified all over South Africa by their badges that they wear on hats, lapels, shirt pockets or caps; the five-pointed silver star of David with a green and black ribbon, based on the design that the founder of the ZCC, Engenas Barnabas Lekganyane had developed in 1928. (Prominent People. Accessed 27 April 2010)

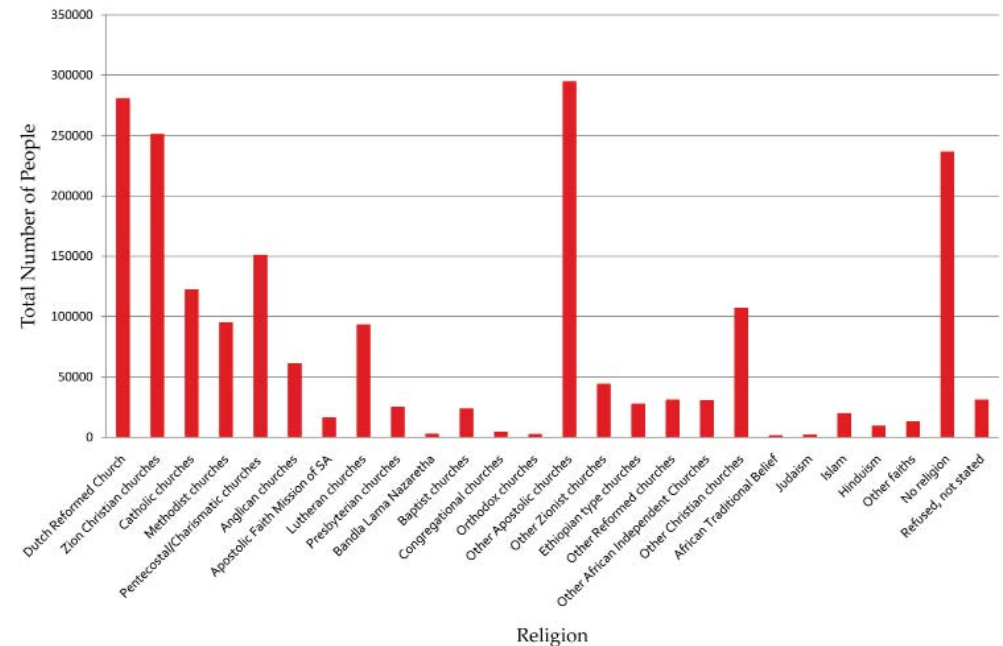


Fig.3. (Statistics South Africa 2001) total number recorded people that follow each major religion, derived from Census 2001 for the Tshwane Metropolitan Region

Engenas Barnabas Lekganyane had been diagnosed with an incurable eye disease and in 1912 he had a vision that told him to go to Johannesburg to join a Church. He was baptized by a threefold immersion into the Zion Apostolic Church of South Africa (ZAC) which healed his disease. When he returned to his home, in the tribal area of Mamabolo, he acted as a missionary for the ZAC. He was ordained into the ZAC in 1918. In 1924 he went to pray about a dispute at the mountain, 'Thabakgone' where he was told by God to found a new church. According to the Old Testament, Lekganyane called this church the Zion Christian Church. In this new Church, he was not only the head, on whom all activities depended and revolved around, but he was also the main prophet. (Prominent People. Accessed 27 April 2010)

Lekganyane is seen by his followers as the Black Messiah who has the gifts of healing, prophesy, contact with the ancestors, and to purify body and soul by the use of water. ("Therismon Kairos" Mission. Accessed 27 April 2010)

After his death in 1948 the Church split between two of his sons: Edward Engenas Lekganyane won the support in the cities and Joseph Engenas Matlhakanje Lekganyane whose support came from rural areas. Edward added the five-pointed Star of David and the letters ZCC to the badge his father created, while Joseph adopted the dove. Joseph Lekganyane was proclaimed the leader of a divided ZCC on 15 September 1949. (S.A. History. Accessed 28 April 2010)

The practices & characteristics of the ZCC:

("Therismon Kairos" Mission. Accessed 27 April 2010)

- Members wear a silver badge described above
- The basic principles include those practices similar to other Christian denominations and aim to spread the Word of God, however African cultural traditions and practices have an significant influence on the church.
- During religious services prophetic staffs are used and ritual garments are worn, these are often white.
- Faith-healing remains the main reason that people joined the ZCC especially in the first few years, this requires confession of sins and faith in God.

Almost half (44%) of ZCC members were second or third generation members of the church, and another 10% had married into the church. Healing still accounted for 15% of the ZCC members joining the church.

- Revelations through dreams



Fig.4. (Internet Image) Aerial view of Zion City, Moria. <http://www.conference-venues.co.za/images/zion.jpg>, accessed 27 April 2010

- Riverine baptism (threefold immersion in the river)
- Obedience to the instructions of the ancestors
- Abstinence from alcohol, smoking, eating pork, sexual promiscuity and violence.
- Members of some denominations are able to practice polygamy
This is seen as a God-created mode of life and a more acceptable principle compared to divorce.

The fact that their church is founded and led by Africans is for some people very important. ZCC members would refer to the African liturgy of the church, especially the ways of singing and dancing. Several of the ZCC respondents said that they preferred this church most of all because it was an 'African' church. The church is specifically geared to fulfil African aspirations and meet African needs.

The ZCC holds the largest Christian gatherings in South Africa twice a year at Moria, Fig.4, which lies 25km east of Polokwane and houses the seat of the Zion Christian Church. These gatherings happen at Easter and again during a September festival. For the 3 day Easter celebrations followers worship outdoors as the building at Moria simply cannot hold the vast numbers of people that attend.

Conclusion

At the outset of this brief investigation into syncretic Churches in Africa it was intended for the intervention to be able to house both Christian and African syncretic denominations. The main focus is to create a space to house Christian Church and thus the spatial organisation will be structured around Christian liturgy but must also be flexible enough to allow for varying rituals or events to take place, such as those practiced by syncretic denominations.

The Church Based Service Centre

The church as a public building is able to perform many important services, this is especially so in underprivileged communities, thus the church begins to extend its definition from religious service to public service.

Now a confirmed atheist, I've become convinced of the enormous contribution that Christian evangelism makes in Africa: sharply distinct from the work of secular NGOs, government projects and international aid efforts. These alone will not do. Education and training alone will not do. In Africa Christianity changes people's hearts. It brings a spiritual transformation. The rebirth is real. The change is good. (Parris. 2008. Accessed 18 July 2010.)

Churches in townships form a large part of a community structure and perform vital roles:

- They provide social anchors for many of the local residents
- They are a source of support and spiritual renewal
- They provide a positive force to counteract many of the challenges that the community faces.
- Ministers who are from the local community have a strong connection to their needs (Cochrane 2008:17)

The church as a Public Service Building, inviting and accepting to all who are in need, is integral to the fabric of a community where it is able to facilitate the feeding of this community on several levels, for a Church must be like a well, 'where everybody can drink and learn good morals' (Matsane 2004:11). The moment that a Church gathers there is a double layer to the space that facilitates the meeting:

The religious one, but even the social one, as a place where people meet together, discuss, interact. The church becomes the centre and the symbol of the community, not only from a religious but even from a social point of view; it is the centre of a lot of activities, political and economical too, a reference point around which the social structure develops. (Albatici & Frattari 2005:3)

The social dynamic within a township is that on the weekend people will either meet at the local tavern or the church, and the function of the church as a social anchor is fundamental. The church also becomes a place of entertainment. This is

where people meet, dance and sing and is a safe place for the youth to interact with others their age. The church is where the community comes together to participate in rituals and celebrations. It is also where new residents are able introduce themselves and get involved in the community, (Cochrane 2008:20).

In the Bible the sharing of food becomes an important metaphor for providing for others. This is seen in the parable of the feeding of the five thousand, the sharing of meals with sinners such as Zaccheus, the tax collector, or breakfast with Jesus' disciples.

Come to me if you are hungry and I will give you something to eat... it seemed that we were feeding people at several levels... we were literally feeding them, but also feeding them in terms of spiritually, emotionally and intellectually. (Baker 2007:119) ...not only are the physical needs of people being met, but their spiritual needs as well in the positive regard and blessing they experience in the course of that sharing. (Baker 2007:139)

The provision of public social services cannot only serve the physical needs of a community, it is the spiritual food and guidance that feeds a man's soul. It is this relationship with the spiritual where man finds his purpose.

This sharing of food extends to the sharing of teachings and advice, the encouragement of good guidance and morals. James Rachels points out that in popular thinking morality and religion are inseparable. People generally believe that morality can only be understood within the context of religion (1994:46). He continues to say that

There are, of course, other world religions that have been equally important. However, in our society most people embrace some form of Christianity, and when "religion and morals" is discussed, it is Christianity that people most often have in mind. (1994:47)

The Golden Rule

Within a troubled or despondent community a Church is a beacon for moral guidance and provides a needed level of accountability.

So in everything, do to others what you would have them do to you, for this sums up the Law and the Prophets. Matt 7:12 (NIV)

This verse has come to be known as the 'Golden Rule' is laid out in Jesus' Sermon on the Mount, which said to be the greatest teaching on morality (Cahill 1995:79). In her essay titled Ethical Implications of the Sermon on the Mount, Lisa S. Cahill (1995:80) points out that the acts which are seen as moral are simply the actions that show the compassionate attention to the needs of others as taught by Jesus. The love that Matthew writes about is in fact not an emotion as we know it today, but rather an attitude and a way of acting. She concludes that righteousness according to God is not purity and law-abidingness but rather to show mercy and compassion in our actions.

You have heard that it was said, 'Love your neighbour and hate your enemy.' But I tell you: Love your enemies and pray for those who persecute you, that you may be sons of your Father in heaven. He causes his sun to rise on the evil and the good, and sends rain on the righteous and the unrighteous. If you love those who love you, what reward will you get? Are not even the tax collectors doing that? And if you greet only your brothers, what are you doing more than others? Do not even pagans do that? Be perfect, therefore, as your heavenly Father is perfect. (Matthew 5:43-49)

In attempting to remedy the effects of a legacy that resulted in a fragmented contemporary society, these solutions cannot come from a mechanical intervention... such a "something," though, can only work if inspired by love (Fathy 1973:2).

... it (the Church) has an epistemological bias towards seeing human history as a potential locus of salvation and transformation on the basis of human endeavour, albeit from a perspective of 'realism'. This makes it potentially well disposed to engaging with the complexity of postmodern plurality, rather than seeking to escape or ignore it. (Baker 2007:70)

Rick Warren (2002:32), author of The Purpose Driven Life says that without God there is no purpose to life, and without purpose, life will have no meaning and a life without meaning will have no significance or hope. Living according to God's laws provides both a sense of perspective and accountability, encouraging all to maintain their moral standards and not to simply obey their selfish wants. This is because on the final day of judgement, each of us will be held accountable for our thoughts and actions (Rachels 1994:47).

For we must all appear before the judgment seat of Christ, that each one may receive what is due him for the things done while in the body, whether good or bad. (2 Corinthians 5:10)

According to this thinking, it is thus impossible to achieve the purpose of life by just focusing on oneself. One must start by focusing on God, because He is the creator and we only exist, because God willed it to be so (Warren 2002:11). Rachels sums up the essence of morality:

...thus if a community lives as we should live, as we were designed to live, we must follow God's laws. (1994:47)

Conclusion:

Both the services and facilities provided within the church and the Church themselves work together to contribute and uplift the local community. The Church is able to accomplish this alone, however this contribution is grounded and enforced by the functional strength of the church. This means that together Church and church are able to feed their community both physically and spiritually.

Conclusion: Resulting Architecture

This thesis proposes a return to the functional Church of service described in biblical times. The resulting church as a nodal public service centre has the potential to begin to unify a fragmented community through its catalytic ability to promote an urban community that is socially and economically inclusive, based on sound moral guidance and communal strength.

The intervention proposed will take the form of a church building, liberated from its walls: without a liberated church, society cannot be liberated and without reform of the Church, social revolution cannot occur. (Moltman 1999:64) This intervention will return to the Church as a home for the Christian people.

A growing awareness prevails in the Church today that the enclosed, isolated monastic way of life must be done away with. The religious orders must once more become closely involved with their secular counterparts. (Burdzik 1978:5)

It would suit me to believe that their honesty, diligence and optimism in their work was unconnected with personal faith. Their work was secular, but surely affected by what they were. What they were was, in turn, influenced by a conception of man's place in the Universe that Christianity had taught. (Parris. 2008. Accessed 18 July 2010)

In proposing a return to the Church of service, the intervention will facilitate Christian ritual and community strengthening to take place. The church building encompasses all spaces that facilitate Church to happen, especially spaces that facilitate community ritual.

Once again the Church has become a house for the people of God: an instrument for forming a human community, which is itself an instrument for the restoration of all things in Christ. (Hammond 1962:19)

The church building; is open to all and must engage and serve all for a Church grows through a spirit of service- thus the church building is also inherently a public service building, providing needed social, spiritual service to a community.

...buildings serve functions, functions derived from social need and hence buildings evolve as social objects (Nice 2008:24)

This engagement is not just the outward flow of energy through social services; Howard and Butcher (2008:4) define this engagement as a reciprocal process whereby communication and interaction effectively lead to a shared perception of social issues and concerns. This energy becomes a cyclical process where the outward energy flow is returned and sustained by an inward energy flow from the community supporting the development.

... Christians black and white, working in Africa, do heal the sick, do teach people to read and write; and only the severest kind of secularist could see a mission hospital or school and say the world would be better without it. I would allow that if faith was needed to motivate missionaries to help, then, fine: but what counted was the help, not the faith. But this doesn't fit the facts. Faith does more than support the missionary; it is also transferred to his flock. This is the effect that matters so immensely, and which I cannot help observing. (Parris. 2008. Accessed 18 July 2010)

The architecture that emerges must grow from programmes that serve the needs of the community. It must nurture community, unity and friendship, it must create places for relationships, and ultimately: *Architecture that is freed from destructive ego, and enslaved to selfless life-giving service to peoples activities.* (Nkambule 2008:36.)

Holden (1995:14) notes that architecture is of great importance as it is a physical representation of perceptions, possibilities, values and aspirations for a community where because of the lifespan of a building, it will contribute significantly to the community's present and future self-perception. This built form must speak to those who would use it, it must be locally relevant, both in programmatic function and architectural language.

The church as a public nodal building must incorporate a strong public interface which is able to define the intervention as a node, this must be identified through scale and architectural language.

Elements such as axis and paths are strong design generators as they give focus to space and ritual. Paths and axis should be defined in space and be clearly identified. One must be aware that detail and spatial elements give rise to vertical and horizontal lines, within a church, these will communicate symbolically.

'Relevant' architecture is firmly rooted in this search for a genuinely South African architectural language, of which the core concept mentioned above serves as a solid foundation. But a 'Relevant' architecture exceeds the commitment to these principles by taking into account the specific conditions – economic, social, environmental, cultural, technological- currently prevailing in the new, post-apartheid South Africa. It holds that architecture, particularly public architecture, should be socially relevant and empowering by generating employment, providing training opportunities, building capacity by engaging and involving people in various ways, and creating structures that serve the community's needs more than the architects image.

(Marschall & Kearney 2000:2)



Chapter 3

Context

- History of Service Provision
- Locality of Services in Mamelodi
- Regional Framework
- Site Context
- Site Analysis
- Locality Framework & Vision

"The make-up of Tshwane should rather be understood within the context of a polycentric (multi-nodal) metropolitan region."

(The City of Tshwane 2007: 10)

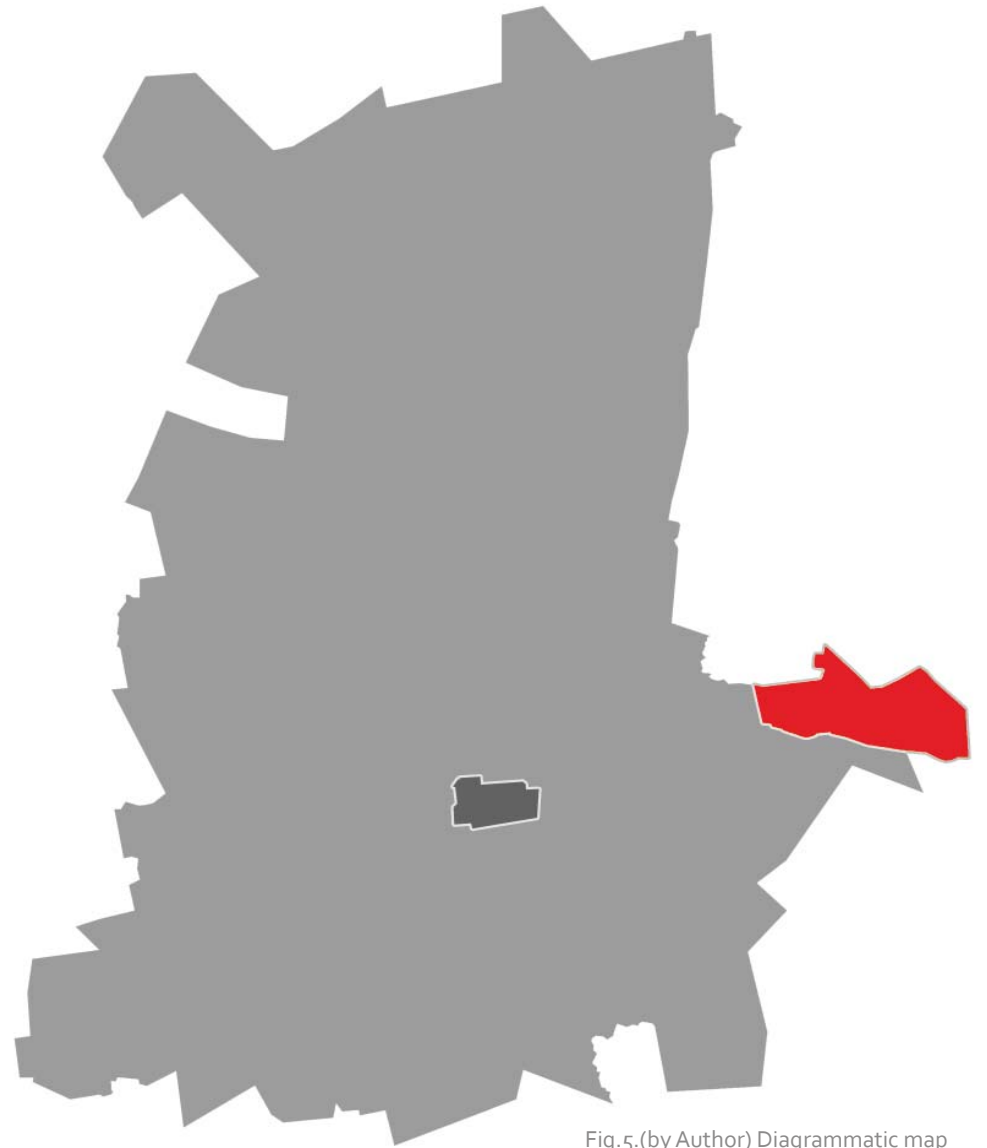


Fig.5.(by Author) Diagrammatic map of Pretoria showing Mamelodi (red) in relation to the Pretoria CBD (dark Grey)

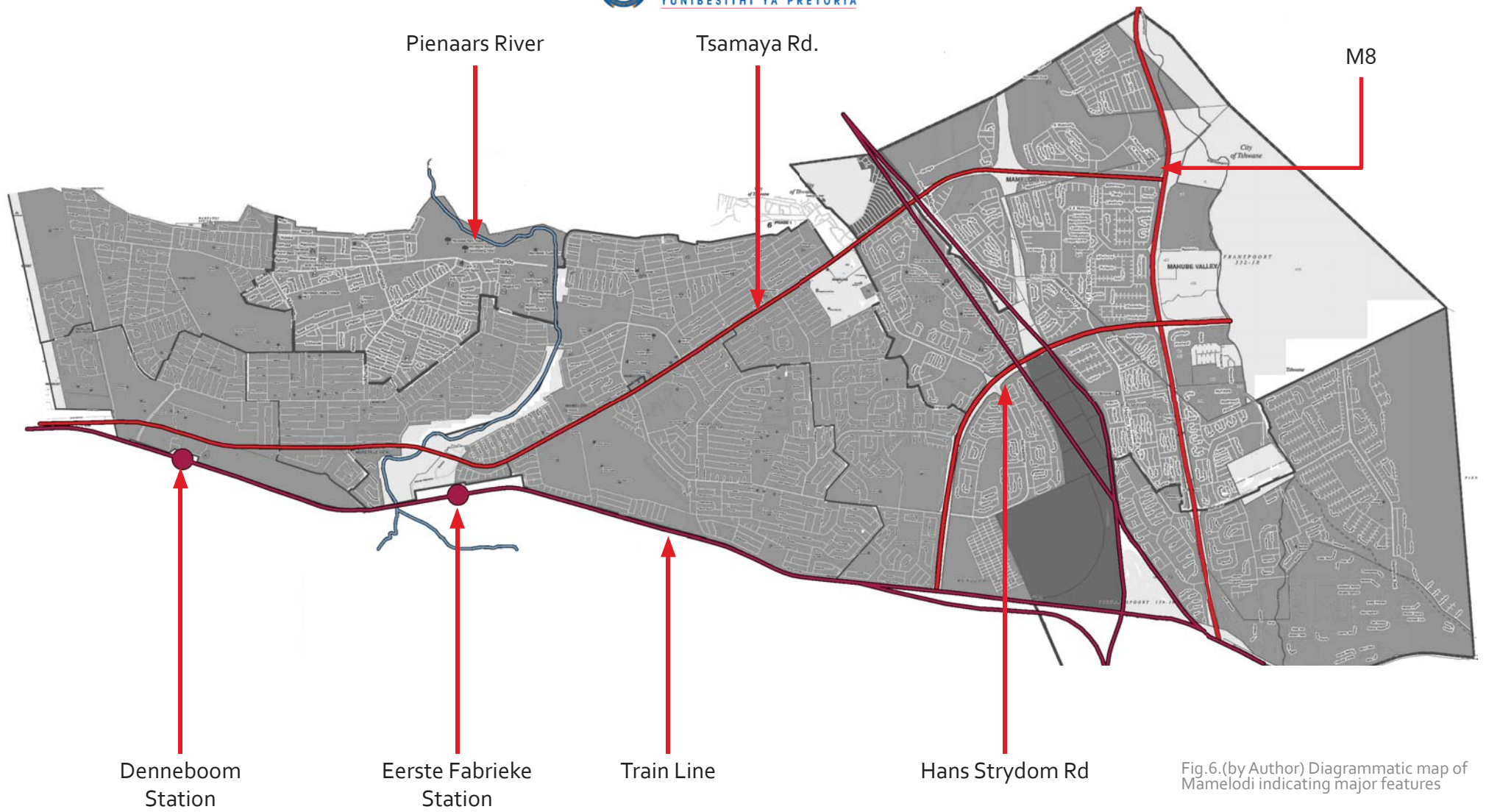


Fig.6.(by Author) Diagrammatic map of Mamelodi indicating major features

History of Service Provision in Mamelodi

Timeline relevant to Mamelodi Township
(previously Vlakfontein) and its impact on the
current infrastructure of Mamelodi East

The history of service provision in the township of Mamelodi has a large impact on the gaps in the current infrastructure. This directly impacted on Mamelodi East where services are greatly lacking or missing.

This brief timeline gives some background to this issue:

15 January **1861** it was recorded that the farm of Vlakfontein 329 JR was allocated to C. Jansen, this is assumed to be the first owner of the farm, which was then sold on 21 May 1861. However the recorded history of farm itself dates back to before Pretoria was founded.

In **1874** Vlakfontein was divided into three parts, where the Pienaars River (previously known as the Moretele River) divides the area in half, Fig.7. The first residents of the area probably worked with Sammy Marks at the first factory in the Transvaal, 'De Eerste Fabrieken in de Zuid-Afrikaansche Republiek Beperk'.

1905 the Transvaal government established Lady Selborne and a notice defined Marabastad and Schoolplaats as 'Black locations', each with specified boundaries.

A map dated **1908** indicates a church intended for the 'Black' residents and several huts.

1923 Lady Selborne was named as a 'Black residential area'. In terms of the Native Land Act of 1913 this was one of the few areas where Black people were able to own property.

30 October **1945**, the Pretoria City Council bought Vlakfontein parts 2 and 3 to lay out a 'Black urban area', following the passing of the Black Consolidation Act No.25 in the same year. Vlakfontein was laid out by the town planning division of the Pretoria City Council; this was originally carried out by N.T. Cooper, who had also laid out Atteridgeville, Saulsville and Groenkloof as seen in Fig.8. The location of Denneboom station is indicated.

1948: The City Council of Pretoria designed a Native housing scheme for Mamelodi for which *'the initial idea wasthat such a layout would induce sociological patterns parallel to the tribal system and so minimise the sometime disastrous effects of the removal of tribal authority in urban areas'* (Ball 1968). By September 1947 a large section of the settlement, officially called, the Lapa Scheme, was rejected by community as *'primitive kaffir housing'* and demolished it. (Pretoria News, 6 Sept 1947: Report.) Two months after the construction of the Lapa Scheme, construction had begun on the first college, which was opened and

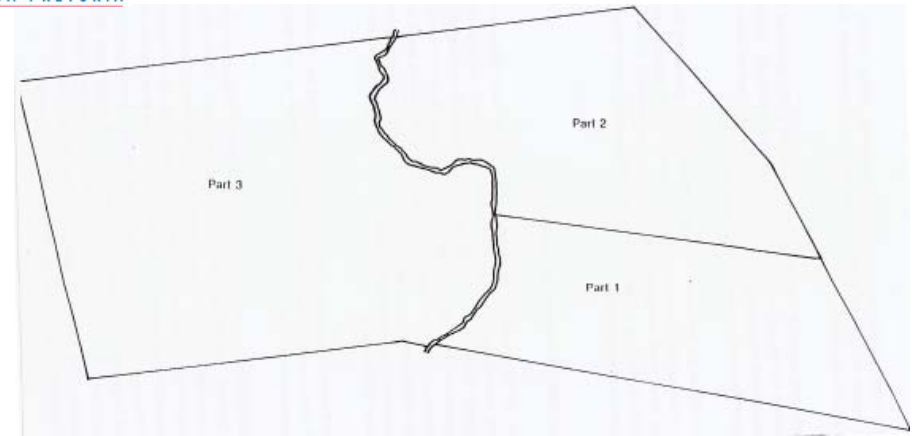


Fig.7. (Walker et.al. 1991:3) Subdivision of the farm Vlakfontein 329 JR

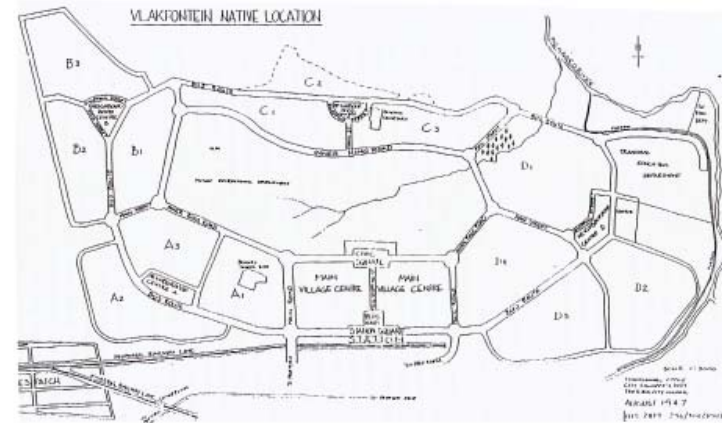


Fig.8. (Walker et.al. 1991:5) Vlakfontein Native Location: Layout in 1947



Fig.9. (Walker et.al. 1991:8) Mamelodi: Situation 1961

and known as the 'Mamelodi Rondavels. It was the first educational institution established by the Transvaal College of Education for the Pretoria Normal Bantu College. The Rondavels were associated with Kolege ya bana ba Afrika. Bishop Stanley Magoba and Archbishop Desmond Tutu, amongst other struggle leaders, received an education here. The college was closed in 1958, under apartheid law, and later became the University of the North, now Limpopo, at the Turfloop campus in the Northern province. (Bakker 2003:3)

1950's: Maternity Home is built by the Vroue Sendings Bond

The first school is built and in August **1952**, the Minister of Native Affairs, Dr. H.F. Verwoerd, announced the consolidation of the eighty two squatter camps and eleven 'Native' residential locations that were situated around Pretoria into three 'Black residential areas'. The eastern area was to be located at Vlakfontein. The Vlakfontein farm and existing settlement was suitable for this use as it was close to an existing railway line and a road, which lead to Cullinan. The neighbouring mountains would also form a barrier to prevent farmers of the area becoming uncomfortable about the proximity of 'natives'. (Walker et al., 1991:2)

1953: Public Library Mamelodi East

In June **1953** Vlakfontein was zoned as a township.

By February **1954**, there were approximately 6000 people living at Vlakfontein. Just four months later there were approximately 10 000 people living there. By 1960 these numbers rose to about 50 000. The Pretoria Joint Committee reported that there were no sports facilities, shops, orphanage or police station in Vlakfontein, however there was a beer hall, located in the centre, an old aged home and a small cemetery.

The first businesses were only allowed to trade in **1955**, of which majority were spaza shops.

1955: The first clinic was the size of a single house, already grossly undersized. It was situated outside town as per the native law regulation of the day. It was doubled in size and by 1958 moved to another ward where it still is today.

1956: First school for non-whites, Mamelodi Model School later named Gamelodi School. Mamelodi High School was opened; Eersterus Community School, the Jam School; 36 Primary Schools; 12 Secondary Schools followed.

1957: Magistrates Court is built

June 6, **1958**, Proclamation 150 rezoned Lady Selborne as a 'white residential area' and the non-white residents were moved to other areas such as Mamelodi and Atteridgeville. Squatter camps emerged in areas such as the western and northern farms of Mooiplaats and Derdepoort as a result of non-white people seeking work in the cities, following the post war industrialisation. These squatter camps were also found in 'white' areas such as in Riverside, Eersterust, Eastwood and on the Vlakfontein farm. This proclamation also meant that the people settling in these 'White' areas had to move.

In the late **1950's** it was decided that more land to the east was needed, after the west became fully occupied. In 1960 the remaining part 1 of the original Vlakfontein farm was bought.

1960: First Police Station is built

July **1962** Vlakfontein was re-named, Mamelodi, which means "Place of Joy" in Tswana.

1962: Putco Public Transport

1964: First public cinema

1970: First major sport and recreation facility

1976: First clinic and feeding station was built in Mamelodi East

1976: The Mamelodi Cripple Care Centre was built, the new premises was occupational in 1981 in Mamelodi East

1977: Minibus and Taxi Rank

1977: YMCA in Mamelodi East

1980: Public Library in Mamelodi West

1983: First Hospital

1983: SOS Children's Shelter was built

1983: The first Hospice was built in Mamelodi East

[Nice 2008 & Walker et.al 1991]

The above list of infrastructure insertions may appear adequate, due to the size and demographics of Mamelodi today. One may state that the social and public services in Mamelodi have historically been provided at a level which is greatly lacking. These services have been distributed according to minimum standards, thus many people do not have adequate access to facilities.

Of these services listed, the Churches in Mamelodi have flourished, providing much needed support and opportunities for their communities:

Churches in Mamelodi had (have) a great social meaning for the residents. They brought warmth and comfort to the low paid workers, the unemployed and the ill. The Churches also created a platform from where residents could meet and share their common experiences and views about township life. Thus the Churches made an important contribution in terms of community advice and social welfare in the township of Mamelodi. (Chiloane 1989:2)

A brief study was conducted of the various Christian denominations in Mamelodi. Twelve different Church congregations were visited and documented.

The size of local congregations varies between an average of 300 people with the largest being over 1000, such as the Universal Church of the Kingdom of God, and the Mamelodi International Assemblies of God.

The study sought to identify the needs of the local communities through identifying the services that their Churches sought to provide.



Fig.10. African Congregational Church
All photos by Author



Fig.11. St. Francis of Assisi Anglican Church



Fig.12. ZCC: St Eneas



Fig.13. Mamelodi International Assemblies of God



Fig.14. Universal Church of the Kingdom of God



Fig.15. Bethlehem Christian Pre-School Centre



Fig.16. St. Raphael's Catholic Church



Fig.17. Evangelical Church



Fig.18. Chriscom Tented Church



Fig.19. Fruit Bearers Tented Church



Fig.20. Grace Tabernacle - inside YMCA hall



Fig.21. Dutch Reformed Church

The African Congregational Church

Source: Rev. B.M. Xulu, Fig.23

- Sunday School
- Youth group
- Women's prayer group
- Pre-school
- The Reverend serves as a Chaplain at the local Hospice
- Provide quarterly support for the local orphans in the form of food and supplies



Fig.22. African Congregational Church



Fig.23. Rev. B.M. Xulu

St. Francis of Assisi Anglican Church

Source: Johannah, Fig.26

- A daily feeding scheme for the vulnerable children of the community
These children are also helped with their homework and ministered to.
- The food for the feeding scheme is sourced from the Church's food gardens
- Sunday School for children older than 2 years
- Confirmation classes for 12 year old children
- Exercise classes for the elderly who also cook for themselves in the kitchen



Fig.24. Steeple - St. Francis of Assisi Anglican Church



Fig.25. Interior View - St. Francis of Assisi Anglican Church



Fig.26. Johannah

ZCC: St. Egnias Church

Source: Frans & Observations

- The ZCC are extremely wary of strangers and appear to be a very private Church
- A dress code is enforced and those who are not appropriately dressed are not permitted to enter the grounds. Women wear skirts and cover their hair while men wear a uniform and a cap.
- Worship is conducted separately for the men and women of the Church and they worship every day.
- Worship is conducted in an open courtyard as the only buildings present are small sheds.

No additional information was given as all direction must come directly from the head offices in Moria



Fig.27. (Google Earth) Aerial View Indicating Location of the ZCC : St Egnias Church

Note: All photos by Author

Mamelodi International Assemblies of God

Source: Meeting with Senior Church Council

- Intokozweni
Daily initiative for HIV/AIDS orphans, feeding scheme and assists with homework
- Counselling is available on Saturdays.
- Assist in notifying the local community about new legislations and laws
- Partnerships with governmental departments, Fig.30 , especially the Department of Home Affairs in order to assist people in obtaining ID books, passports etc.
- Offer support for community members after the death of a loved one, as many Churches will not support non-members
- Prison Ministry as a platform for social reintegration
- F.S.I. - Family Support Institute
- Congregation numbers +1200, however only 600 are younger members

Universal Church of the Kingdom of God

Source: referred to website www.uckg.org

All the Universal Churches of the Kingdom of God offer the same social services:

Training Centre: skills training, such as computer literacy and career guidance

Counselling is available free of charge

24hr Helpline offering guidance and support

The Rescue of Dignity Group (ROD) for supporting prison inmates both spiritually and physically, through letter writing and regular visits.

The Patient Care Group visits patients and those who are housebound.

Support group for victims of abuse

Support for the elderly through counselling and home help such as shopping and house cleaning,

Regular group activities are also hosted by the Church

The youth from birth through to young adults are catered for by various groups and activities

Support Group for single mothers meets weekly



Fig.28.Interior view of the Mamelodi International Assemblies of God



Fig.29.Mamelodi International Assemblies of God as seen from the road



Fig.30.Governmental Initiative hosted by the Mamelodi International Assemblies of God



Fig.31.View of the Altar Space of the Mamelodi International Assemblies of God



Fig.32.View of Signage above the main entrance of the Universal Church of the Kingdom of God



Fig.33.View the Universal Church of the Kingdom of God as seen from Tsamaya Rd.

Note: All photos by Author

Conclusion:

The local Churches generally engage in the following functions, in addition to those normally undertaken by a Church body. These functions are obviously needed by those they serve:

- Feeding schemes
- Assistance with school work and after school care
- Counselling
- Activities for the elderly
- Sharing of knowledge and information regarding governmental initiatives and laws
- Intensive Social interaction as it was noted that often the Churches meet daily or at least several times a week.

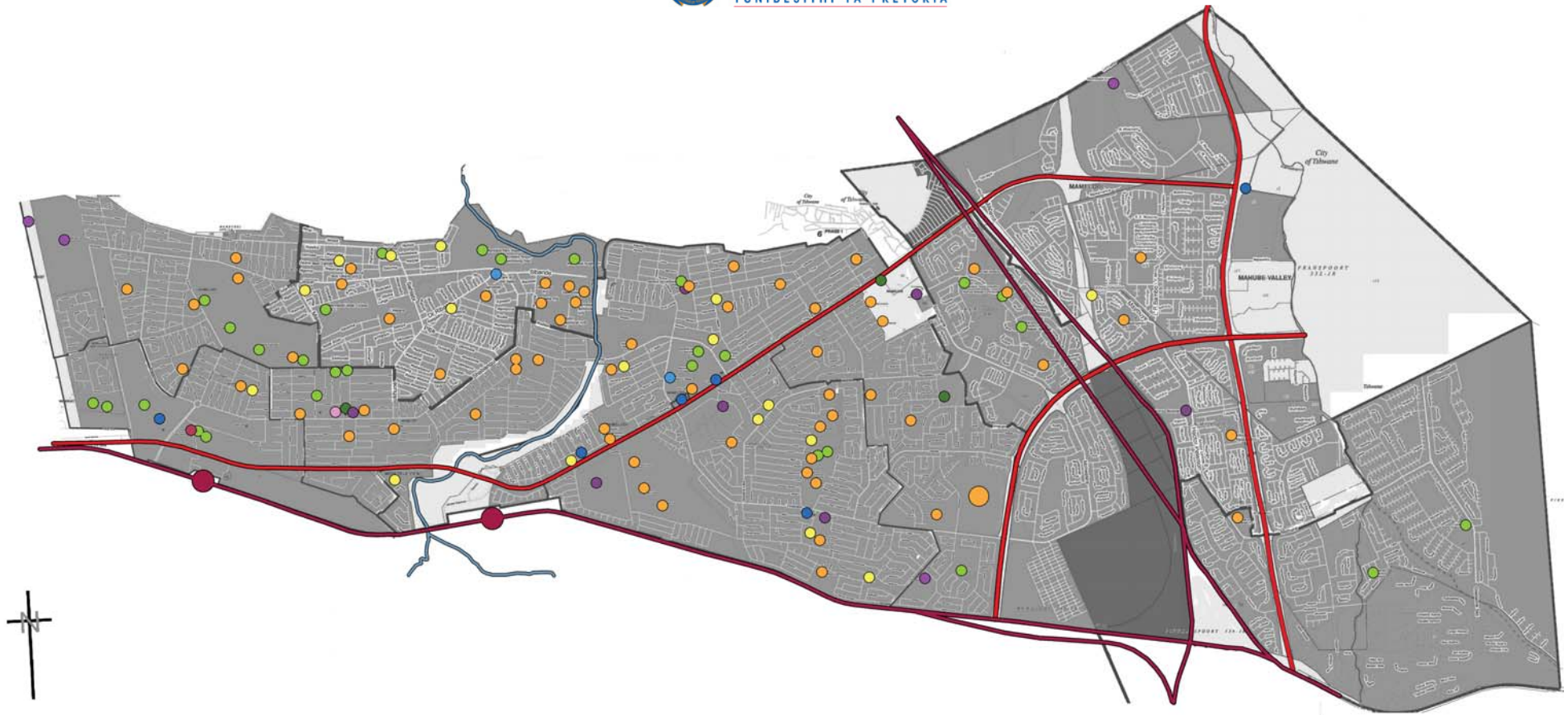
The functions listed above must be able to be facilitated by the intervention as well as additional functions that are needed by the community of Mamelodi East that are not provided for by the existing Churches. These will be investigated through the mapping of local services, which will identify local needs.

Regional Framework

Linear Nodal Development Framework
Done in partnership with
Hayley T. Roberts

All images in this sub-chapter are by the Authors

Locality of Services












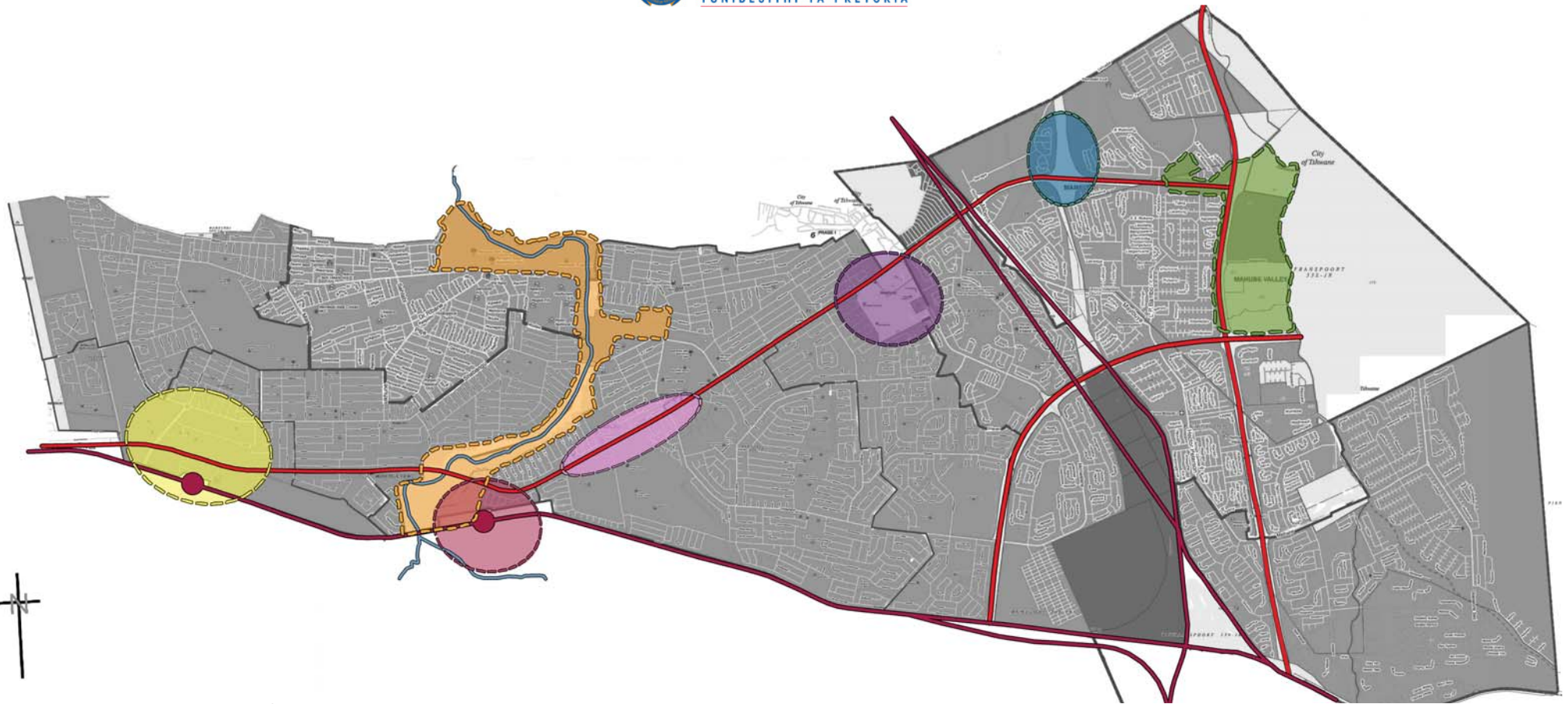
- | | |
|--|--|
|  Children's Village & Old aged Home |  Schools & Learning Centres |
|  Churches |  Solomon Mahlangu Square |
|  Fire Station |  Shopping Centres |
|  Clinics & Hospitals |  Sport & Community Facilities |
|  Grave Yards |  Police Stations |

Fig.34. Diagrammatic map of Mamelodi showing the locations of various social and public service facilities



The most noteworthy aspect of the process . . . Is that the final hypothesis is the creation of neither the community nor the designer, but is the product of the interaction of each. For such interaction to be productive, two conditions must be present:

- *An understanding on the part of both the designer and the community of the nature of the process and how it works.*
- *A willingness on the part of each to plunge into it fully, to give of themselves, to submit to the discipline it entails, and to bring to it, fully, the creative input demands.*

(Bacon, E.N. 1967: 262)

Fig.35. Diagrammatic map of Mamelodi showing the locations of the proposed Nodes included in the Linear Nodal Development Framework

Aims

Large Urban commercial frameworks have very rarely been achieved within a socio-political context, as they require an extensive amount of governmental effort, energy and finances in order for these schemes to be implemented successfully. This form of Urban planning or vision often takes little cognisance of the existing fabric and natural growth that could occur within the area, which would lead to a richer urban fabric and better appropriateness of place. Rather than the imposition of a single person's or organisation's vision and ideologies there should be a listening conversation between the community and the designer.

Harmonious surroundings provide a support for outer social and inner personal harmony. Harmony can be achieved by rules – but it lacks life. Or it can arise as an inevitable but life-filled consequence of listening conversation (Day. 1990:70)

Definition

The frame work that we are proposing for Mamelodi is a Linear Nodal Development Framework. The definition of this framework is the upgrading and provision of services coupled with the implementation of individual catalytic interventions, such as community oriented or commercial facilities; in order to facilitate natural growth and cohesion to reclaim lost or forgotten spaces, areas and peoples within the existing fabric.

Mamelodi's cultural and historical past as a township has caused large scale fragmentation and ill planning that has disrupted the built and social fabric. Forgotten spaces and cracks in the form of buffer zones, empty sites and disjointed or absent services have become almost institutional in the Mamelodi context. The reclamation of these isolated, forgotten spaces and their stitching together through the improvement of existing infrastructure and provision of services becomes the focus of the Linear Nodal Development Framework

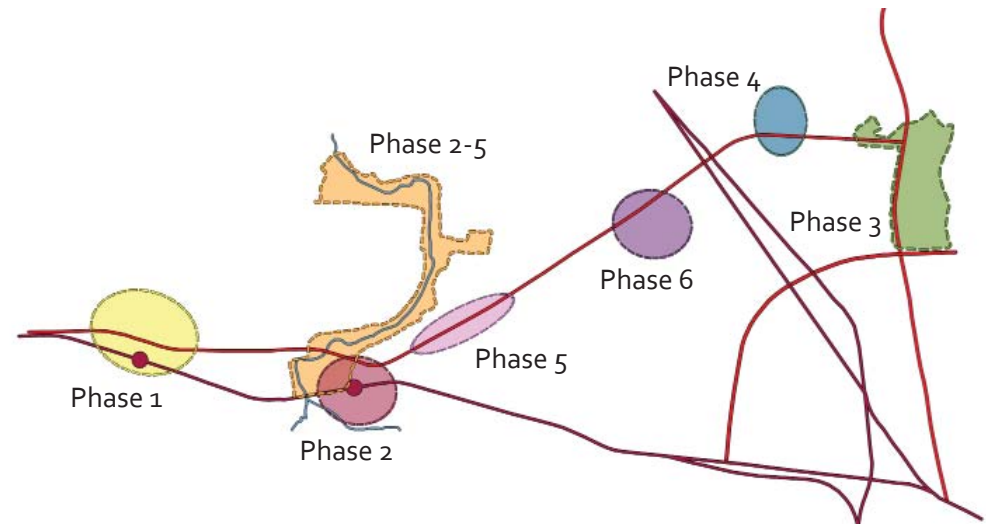


Fig.36. Diagrammatic map showing relative locations and phasing of the proposed Nodes included in the Linear Nodal Development Framework

Node 1

Phase 1

Inter-Modal Transport Junction
High Density Housing
Commercial and Office
Mixed Use Development

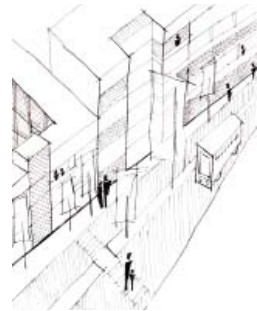
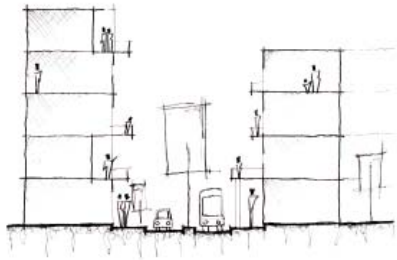


Fig.37. Location and proposed scaling of Node 1

Node 3

Phase 2

Inter-Modal Transport Junction
High Density Housing
Informal Trading
Mixed Use Development

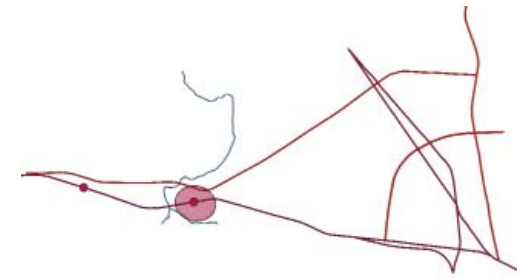


Fig.38. Location and proposed scaling of Node 3

Node 2

Phase 2-5

Rehabilitation of Pienaar River
Urban Agriculture & Perma-culture
Community Green Spaces and Parks
Pedestrian Access

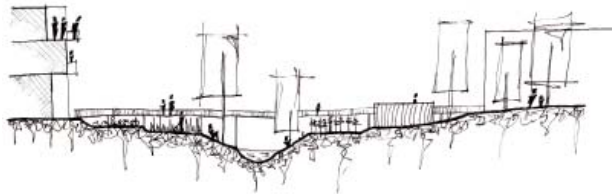
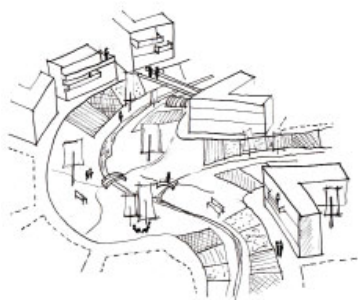
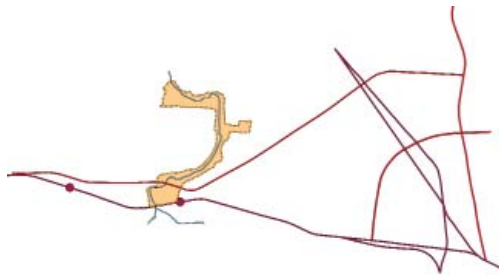


Fig.39. Location and proposed scaling of Node 2

Node 4

Phase 5

Mixed Use Development
Community & Religious Functions
Medium Density Housing

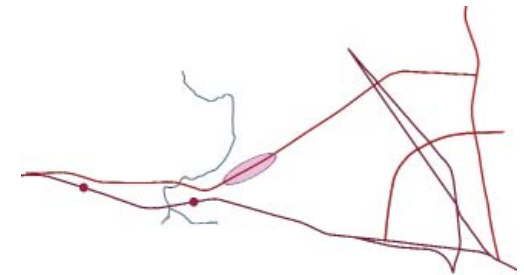


Fig.40. Location and proposed scaling of Node 4

Node 5

Phase 6

Community Oriented Functions
Service Delivery
Public Transport – Bus & Taxi Stops

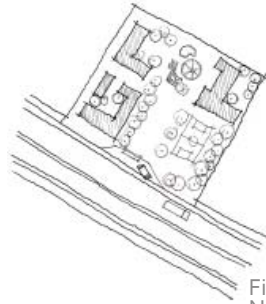


Fig.41. Location and proposed scaling of Node 5

Node 7

Phase 3

High Density Commercial
Mixed Use Development

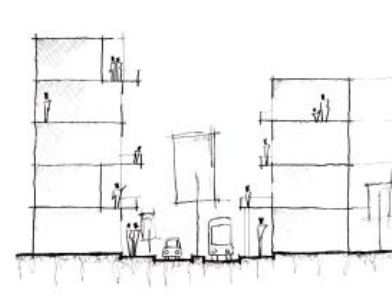
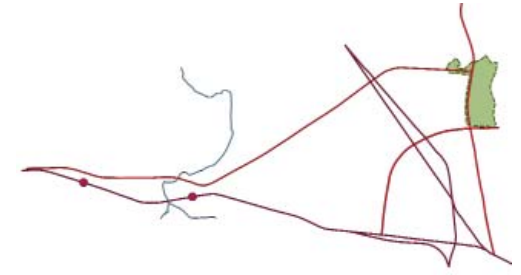


Fig.42. Location and proposed scaling of Node 7

Node 6

Phase 4

Religious & Community Oriented Functions
Service Delivery
Public Transport – Bus & Taxi Stops

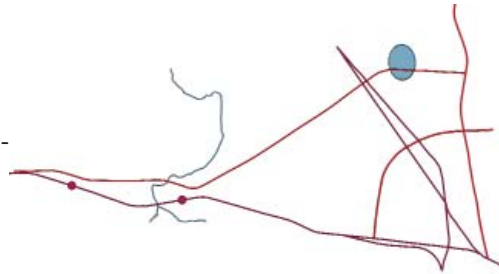


Fig.43. Location and proposed scaling of Node 6

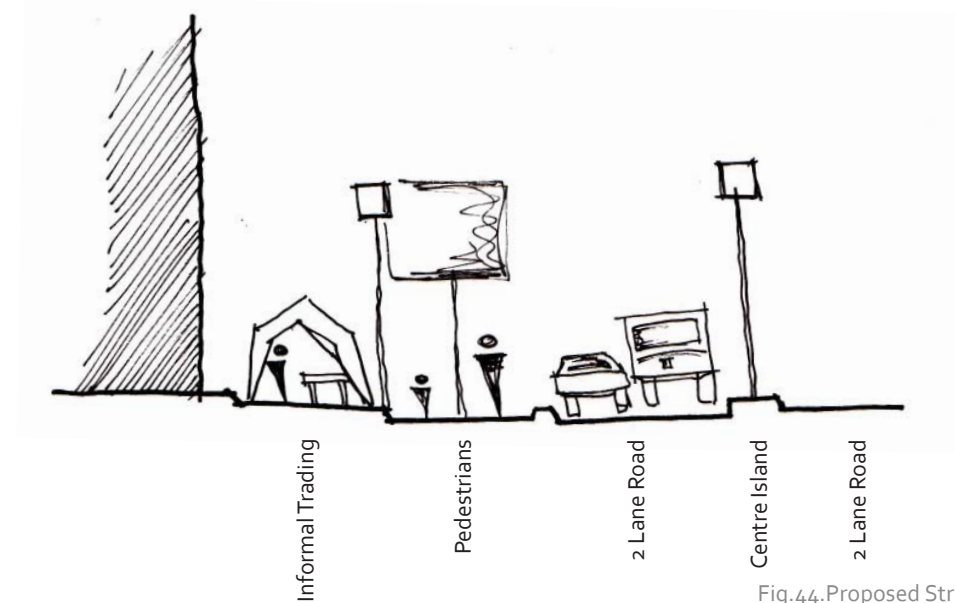


Fig.44. Proposed Street Section

Expression

Themes for artworks be they murals, mosaics, relief works, or sculptures, can be generated in community meetings. Local narratives can provide specificity for broader and more general themes and issues, allowing the artwork to become a focal point of shared memories or aspirations. People thus become active producers of the building rather than passive consumers, and the process of engagement may contribute to public responsibility and prevention of vandalism. (Marschall & Kearney 2000:151)

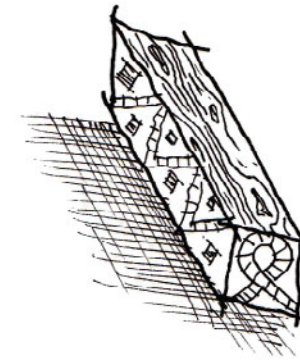


Fig.46. Concrete street furniture, allows for mosaic detailing

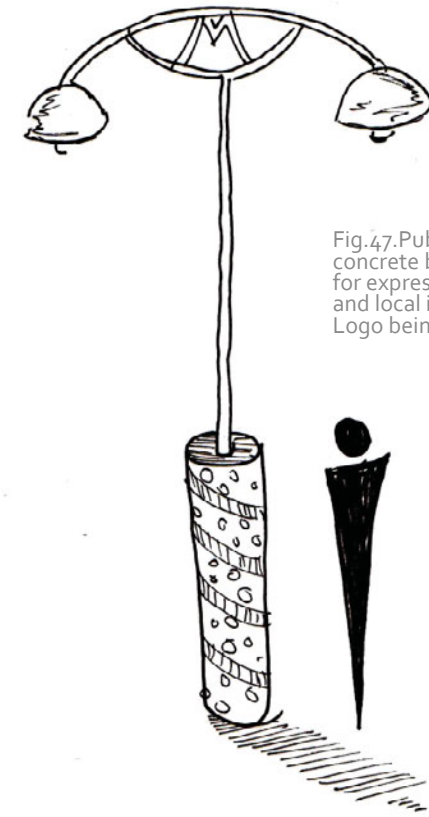
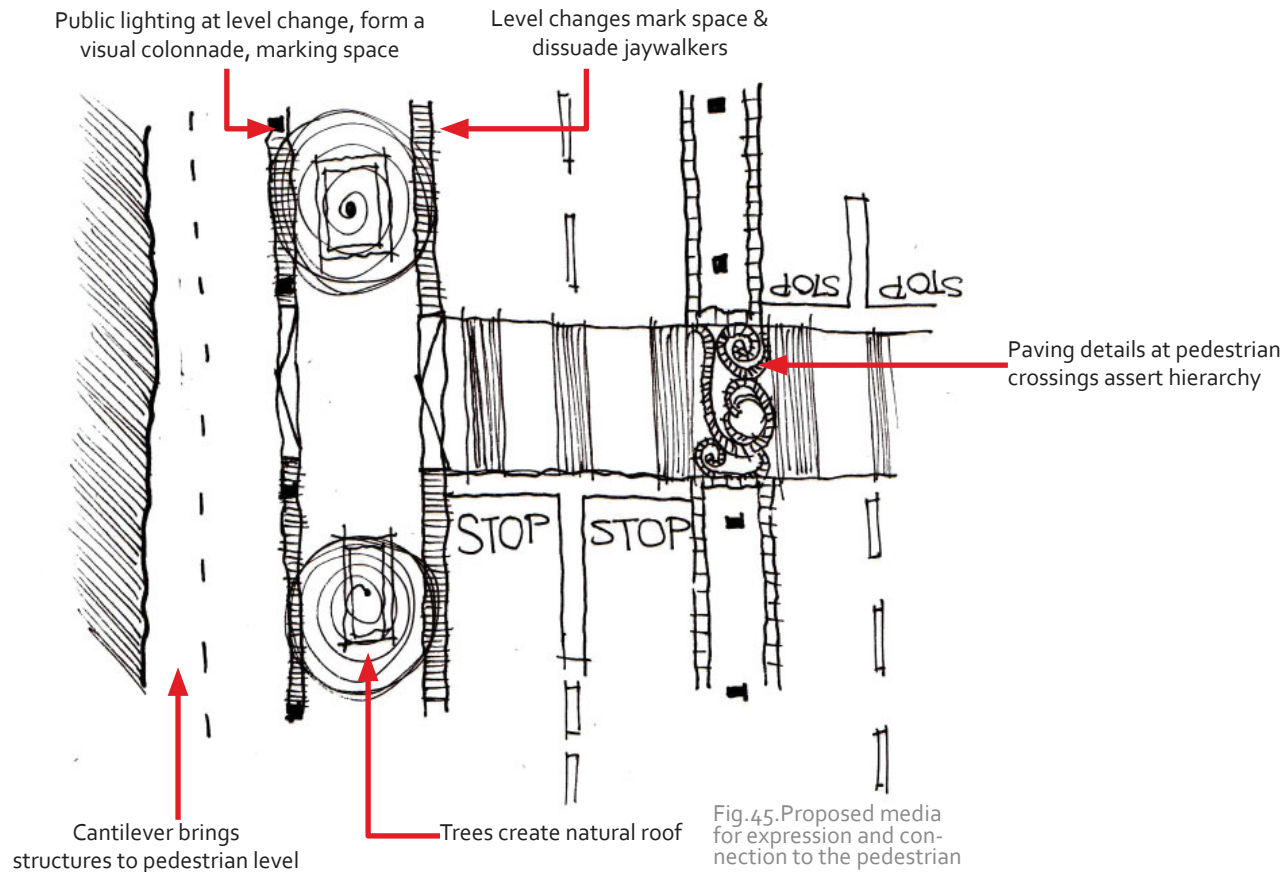


Fig.47. Public lighting with concrete base also allows for expressive detailing and local identity— e.g. a Logo being incorporated.

Site Context

Node 6



Fig.4.8.(By Author) Aerial photo showing Mamelodi: Situation 1961 as compared to 2010, Node 6 is highlighted.



Fig. 49. (By Author) Aerial photo showing forgotten spaces left in the local density and the relative locations of Nodes 5, 6 & 7



Fig. 50. (By Author) Aerial photo showing major access roads and community landmarks

Impression: Mamelodi East

Mamelodi East is, at best, fragmented in terms of its local fabric and infrastructure. As one travels east on Tsamaya road and crosses beneath the railway line, it is immediately clear that you are now on the wrong side of the tracks.

The people here seem to struggle to lift themselves from the environment that they are faced with daily. Even though the people that live in Mamelodi must deal with crime and poverty as part of their daily lives, they are friendly and welcoming, however, there is an overshadowing awareness of the presence and danger of crime.

The population is dense while the scale of the local area is such that no visible structure is more than a single story. Plots of land that were intended to house one family are populated with informal dwellings constructed seemingly in almost every available space. Some locals have started growing their own food in small plots that are left over. These little gardens are pleasing natural elements, amidst the dense urban sprawl.

Mamelodi has a much celebrated street culture, where the street becomes an exciting medium for social interaction. Those that have structures that are able to be seen from the street, have taken every advantage of this fact and have started up small businesses with advertising painted on the walls. There are many informal shopping stalls that have been erected along the roadside. From the many shops and stalls the local inhabitants are able to purchase anything from vegetables to air time to a haircut. In the afternoons there are many people walking to and from their homes and the meagre path that passes for a pavement becomes a bustling avenue for trade and accidental meetings.

Even though the street has much potential as a social and commercial avenue, there lacks any definable edge condition that could both take advantage of, and further facilitate this street culture.

The many Churches of Mamelodi are evident social anchors and a means of escape and mutual support within the community. Engaging with them is a joyous and welcoming experience, but they hold much concern for their communities and a wish that they were able to do more. The women of Mamelodi appear to have much strength and seem to drive many of the Church schemes. There was even a Church that was founded and is attended by only women.

The author found it strange that, to be found at the most Eastern end of Tsamaya Road, amidst the poverty is a great white elephant of a shopping complex. To further add to the acontextuality of this centre is the fact that no Minibus Taxis are allowed within its gates. The public and semi-public transport system is the main means of transport for the community and there are few privately owned vehicles.

One is not sure whom this centre aims to be targeting, as it does not seem to be its local community, and the only commercial activity that appeared to be busy was the KFC. It is doubtful if the centre will be a success without more economic intervention in the area.

Conclusion:

The Multi-Service Centre for Mamelodi East must endeavour to:

- Extend the reach of the Church through functions that are able to provide a source of hope and inspiration for the community.
- Provide an interface between the needs of the community and local government and the local police force.
- Attempt to encourage and facilitate this street culture through an edge condition, which the local inhabitants can use and interact with.
- Provide a means in which the Church is able to become a part of a public service and the everyday lives of the people of Mamelodi East and ultimately a land mark for the area.
- Within the context of the Linear Nodal Development Framework, seek to energise and uplift Tsamaya Road and draw development across the railway bridge.



Fig.51. Scene from Mamelodi - www.mamelodistories.org



Fig.52. Scene from Mamelodi - www.mamelodistories.org



Fig.53. Scene from Mamelodi - www.mamelodistories.org



Fig.54. Scene from Mamelodi - www.mamelodistories.org



Fig.55. (By Author) Panorama of the Northern edge of Tsamaya Rd. at the proposed site

Site Analysis

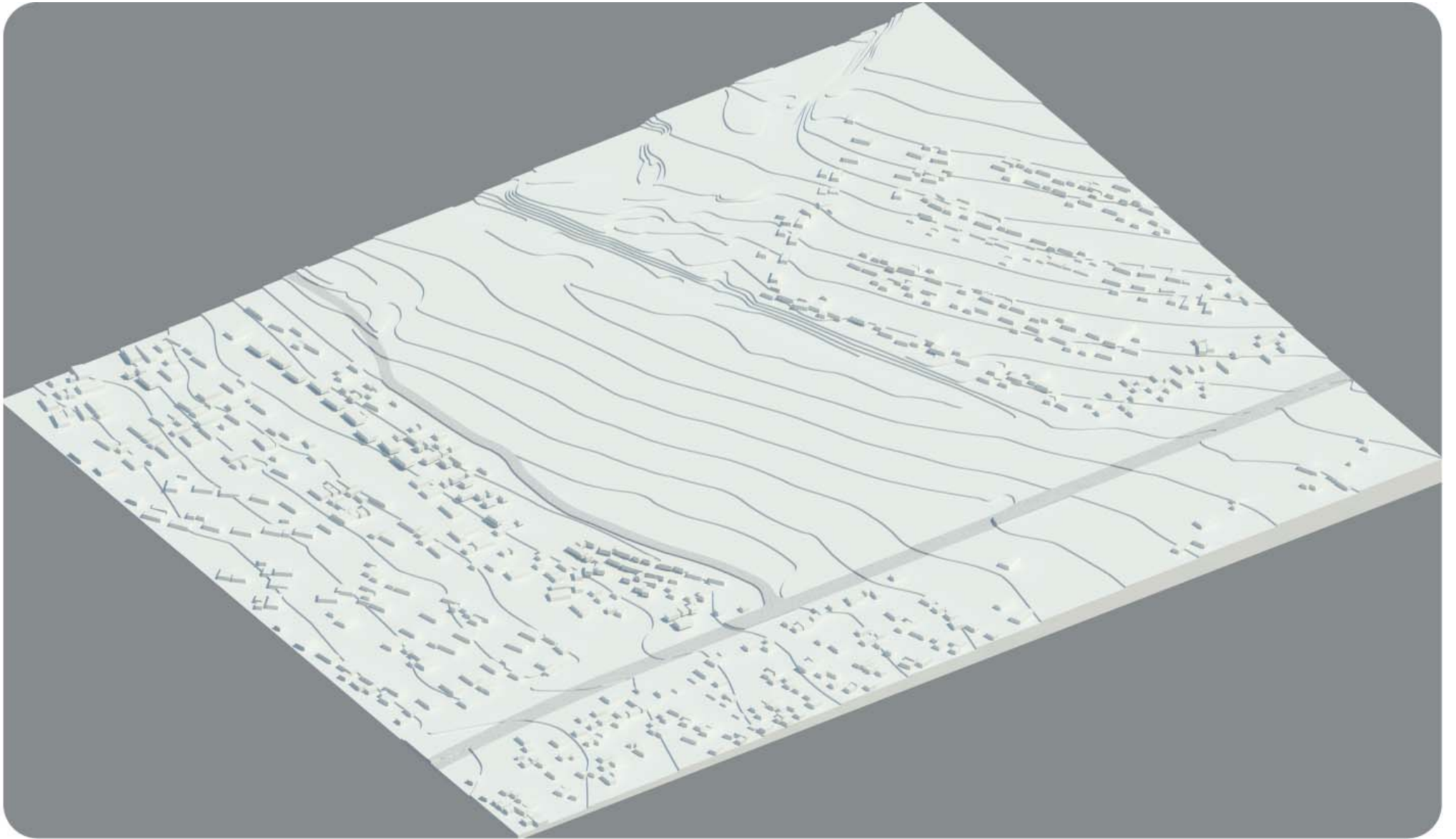


Fig.56.(By Author) 3D model showing topography and existing scale



Fig.57.(By Author) Views of the site from various points

Zoning & Current Use

The site is located in an area in Mamelodi East where Social Service provision is greatly lacking. The creation of a service based, catalytic nodal intervention would seek to facilitate the upliftment process within the community, as is programmed within the Linear Nodal Development Framework.

The Linear Nodal Development Framework seeks to reclaim isolated or forgotten spaces and their stitching together through the improvement of existing infrastructure and provision of services.

This site is one such forgotten space that interrupts the fabric surrounding it. The intervention would seek to re-integrate this fragment in such a way that it is able to contribute to the community in a positive manner, such that the community will be able to interact with the intervention taking place on the site.

Part of the site belongs to the municipality and is zoned as a road reserve [R/63], however as there is a successful road linkage via Hans Strydom Dr. It is proposed that the land is donated and the plot is rezoned. The other part of the site is a portion of the farm Franspoort 332-JR [erf 33033], as shown in Fig.58.

Although the site is divided into 2 parts by zoning, it is one fenced-off property, facilitating both agriculture and floriculture, occurring both in the 6 existing agricultural 'tunnels', measuring 10m x 30m and on the open fields. This is a public-private partnership with the local Municipality and an NGO.

Even though the existing intervention was intended as a community project, the boundary wall and security guard prevents the public from interacting with the gardens.

The maintenance of the gardens is undertaken by 7 men who reside on-site. One of the custodians commented on the current state, saying that the Municipality had ruined it, as no overall site maintenance had taken place in some time.

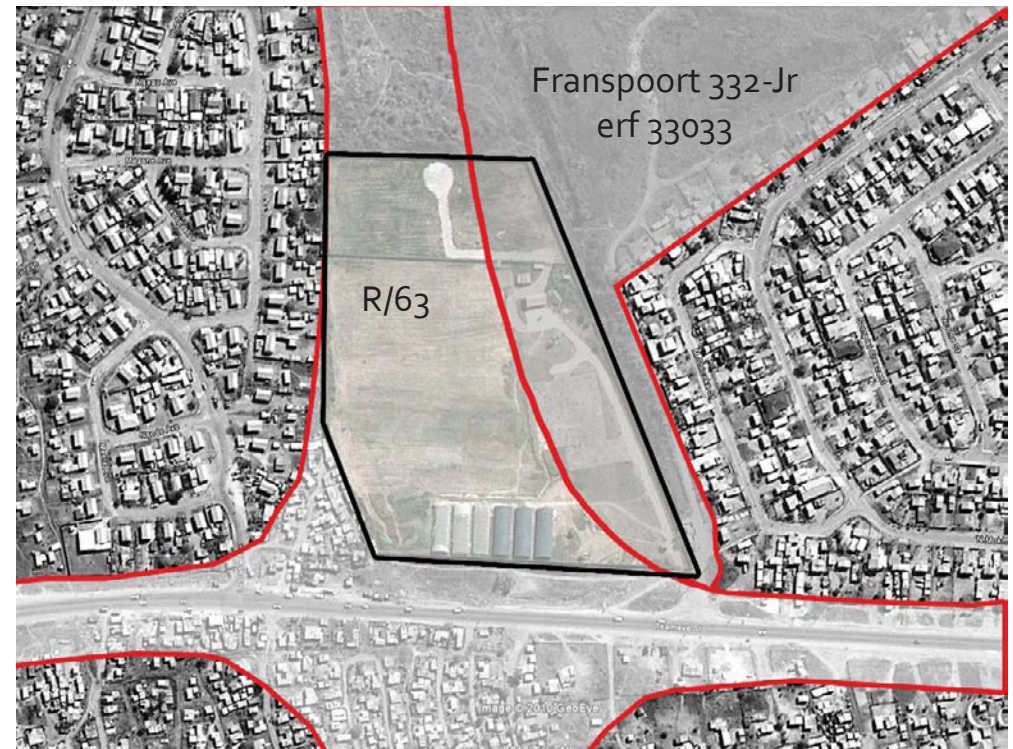


Fig.58.(By Author) Aerial view showing zoning of the site



Fig.59.(By Author) View of an agricultural tunnel showing disrepair



Fig.60.(By Author) View of an agricultural tunnel showing disrepair



Fig.61.(By Author) View showing existing parking area

Topography

The gradient of the area is fairly steep with the land rising 6m from West to East. A steep furrow lies parallel to the Eastern boundary wall, defining the parameter of the site, however the land soon rises to form hills towards the North and North East. From the Northern and Eastern areas of the site, the highest points, one is able to enjoy a view to the west of a nearby Koppie or tall hill.

The predominant North Easterly wind blows with the slope of the land. The Hills that rise towards the North East could accelerate this wind. This could also be favourable through the achievement of large North-South facades and this wind would be able to encourage passive cross ventilation. Also the positioning of structures parallel to the contours would give the opportunity to arrange sheltered courtyard spaces.

The topography could be unfavourable in terms of dealing with storm water as all the water will flow to the South Western corner. The existing canal could be better used to harness this water for irrigation, however water needed for irrigation would effectively be needed to flow uphill. Perhaps rainwater harvesting might be a more viable source.

Density

As stated earlier the density of the area is high, with many dwellings existing on single plots. Development of the area hasn't defined an edge to Tsamaya Road. The author believes this to be due to the lack of road infrastructure and the provision of sidewalks. This means that stall and shop owners get as close to the undefined road edges as possible, or where flat land is available.

The Site is an obvious gap in the fabric of the area and the current initiative does not engage with the community. The intervention could harness the current function as an asset and strive to encourage mutual communication with the urban agricultural initiative.

The intervention would also seek to raise the scale of the area through projecting its own, new scale and defined edges through the architecture and spatial planning.



Fig.62.(By Author) Aerial map showing contours and prevailing wind direction



Fig.63.(By Author) Aerial map showing local densities



Fig.64.(By Author) Views of existing canal



Fig.65.(By Author) Views of pedestrian activity

Services

Municipal sewer lines are indicated to run under the existing vehicle access. The site has access to a water main from Tsamaya Road. There appears to be limited access to power. This may just be due to limited funding of the existing initiative on site as there are existing small water pumps that pump water from the canals to the agricultural fields however small house on site did not display many outward signs of electrical facilities.

The services available are limited to the Southern portion of the site and to the Eastern boundary.

The existing service access should be retained within the new design.

Movement

The provision of infrastructure in Mamelodi East is greatly lacking, this is evident through the hierarchy of movement paths in the area. There are both formal and informal vehicle paths, with pedestrian movement restricted to informal pathways alongside vehicle pathways.

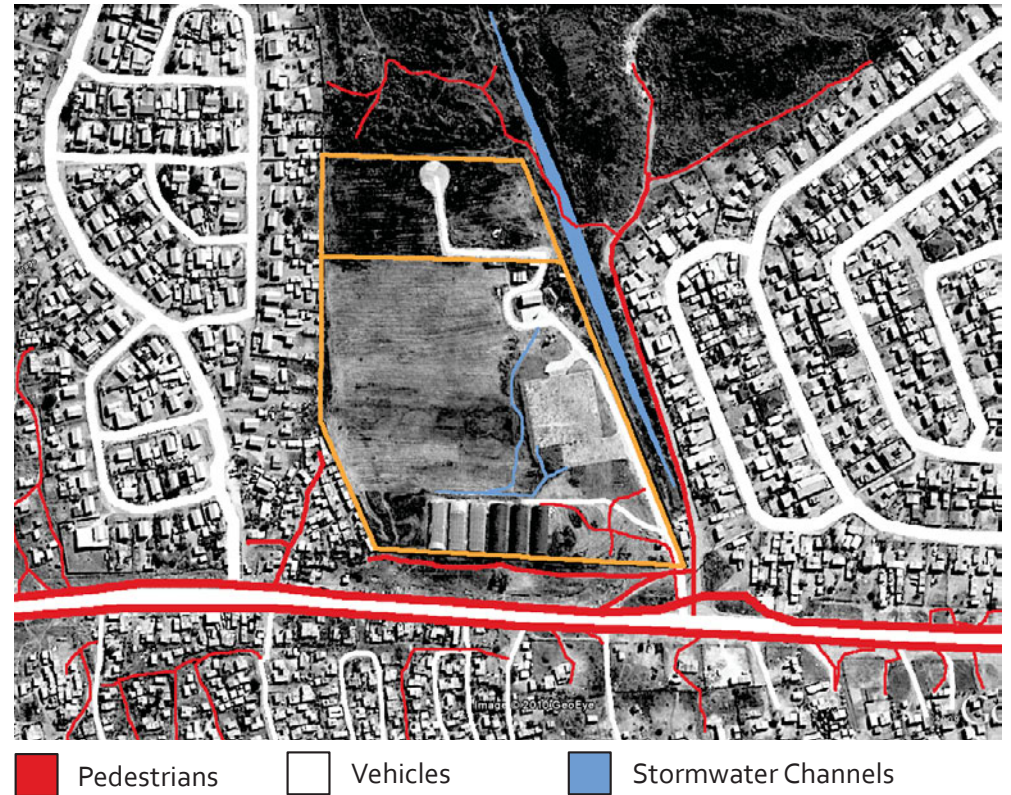


Fig.66.(By Author) Aerial view of the site showing movement of different pedestrians, vehicles and storm water

Fig.67.(By Author) Photograph showing existing vehicular access and parking on site





AVERAGE RECORDED RAINFALL, 1992 - 2003 avg JANUARY- DECEMBER
Monthly Daily Rain (mm) Data for station [0513465 1] - PRETORIA UNIV PROEFPLAAS Measured at 08:00

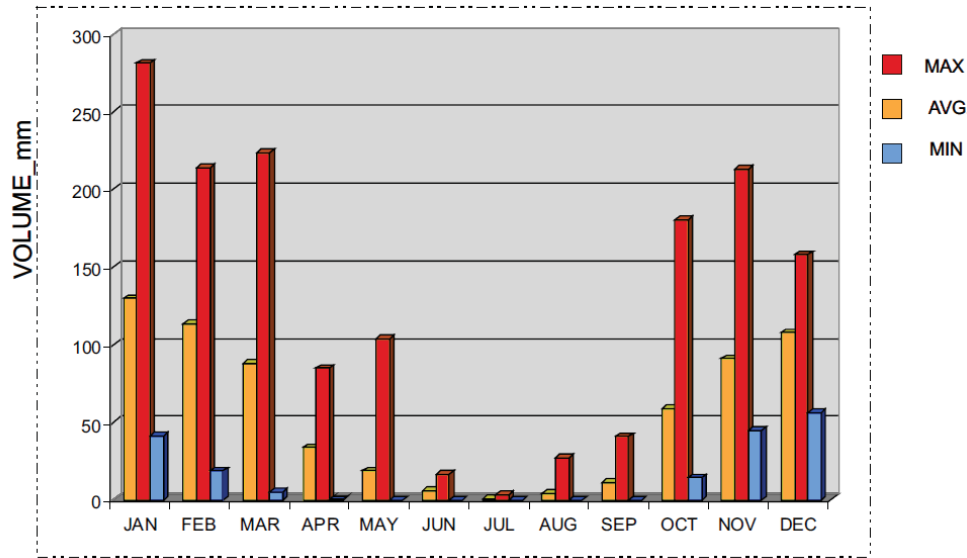


Fig.68.(Nice 2008:35) Climatic data: rainfall

TEMPERATURE, 1992 - 2008 avg. JANUARY - DECEMBER @
Average Temperature (C) Data for station [0513314C9] - PRETORIA EENDRACHT Measured at 08:00
Average Temperature (C) Data for station [0513314C9] - PRETORIA EENDRACHT Measured at 14:00

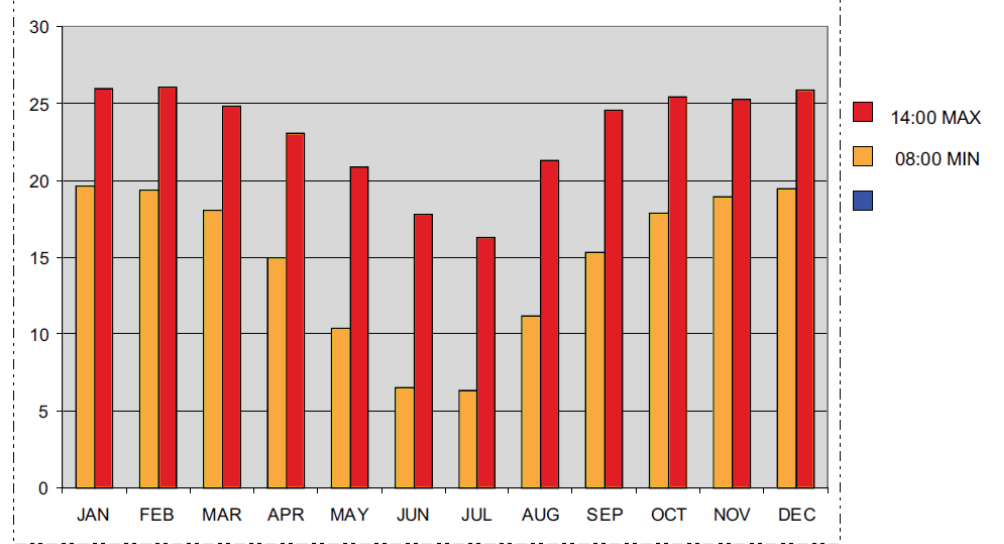


Fig.69.(Nice 2008:35) Climatic data: temperature

SUNLIGHT HOURS, 1993 - 2003 avg JANUARY- DECEMBER
Average Daily Sunshine (hour) Data for station [0513314C9] - PRETORIA EENDRACHT Measured at 08:00

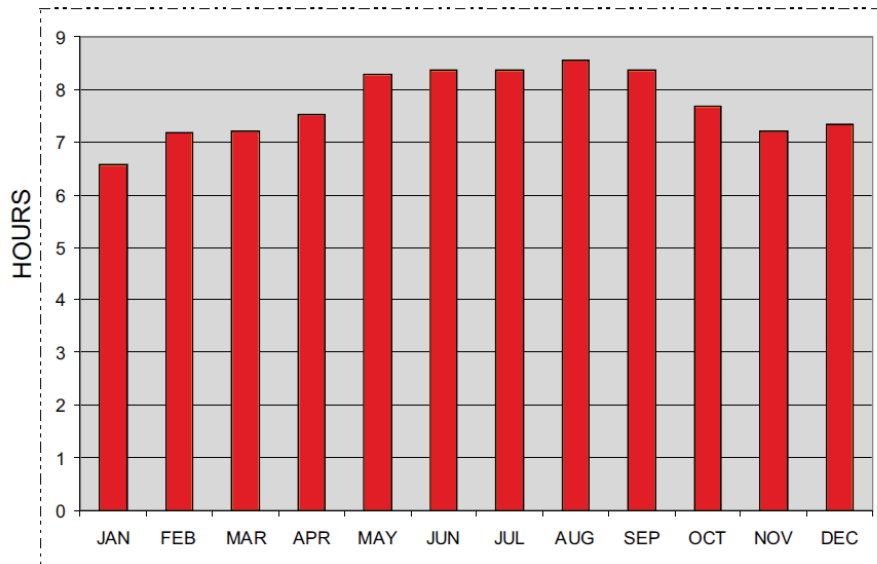


Fig.70.(Nice 2008:35) Climatic data: hours of sunlight

WIND SPEED, 1992 - 2008 avg. JANUARY - DECEMBER @
Average Wind Gust Speed (m/s) Data for station [0513314C9] - PRETORIA EENDRACHT Measured at 08:00

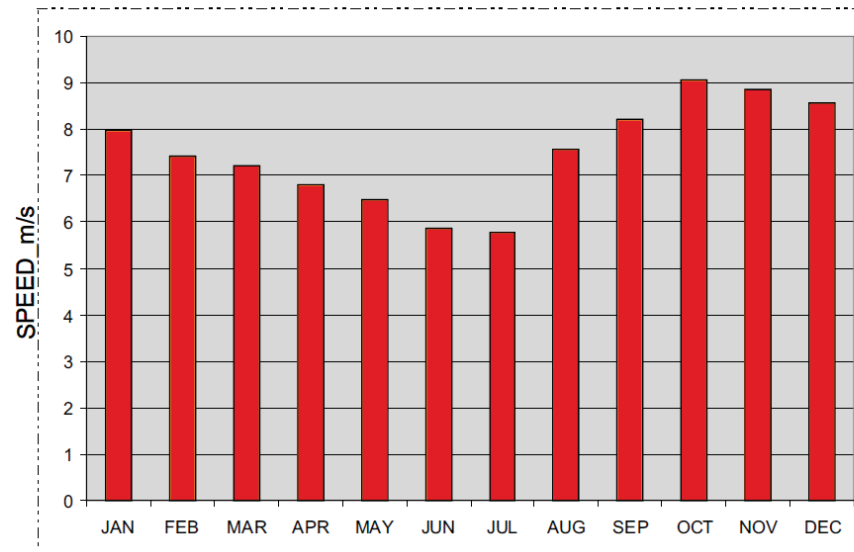


Fig.71.(Nice 2008:35) Climatic data: wind speed

Climate

Temperatures are generally comfortable; however the winter months will require the buildings to provide thermal insulation, this will in turn ensure the internal spaces remain cool during summer. The high amounts of constant sunlight require spaces to shade and shelter from the heat and harsh light. This also means that solar energy is a possibility.

Water

Storm water on site is channelled via concrete canals towards the Agricultural Tunnels. This water is collected from the runoff from the paving of the parking areas, now overgrown. Alongside the Eastern boundary is a valley, which naturally collects rainwater runoff. The annual rainfall for Pretoria is fairly high, however the majority of rain occurs in the Summer months. An average of less than 2mm is recorded for the winter period. Therefore rainwater harvesting should be explored to supplement municipal water for irrigation but it cannot replace it as the only source.

Initial SWOT Analysis

Strengths

- The site borders Tsamaya Road which means that any intervention will be clearly visible and easily accessible.
- The lack of local services is appropriate for the intervention.
- The large site means that there is sufficient opportunity for expansion and densification of the site.

Weaknesses

- Although the large site may allow for expansion and development, it may also provide a challenge to develop.
- The steep rise in topography towards the east may hinder attempts at establishing hierarchy on site, as the east is associated with the service access.
- The existing agricultural sheds are in a state of disrepair and occupy a large portion of prime space along the road side.

Opportunities

- Possibly proximity to the road edge could allow for engagement with the street cultures
- The space available for expansion would allow for change and development over time
- The location on the main road provides an opportunity to establish landmark prominence
- The large Southern boundary enables the architecture to form the ideal orientation with major facades oriented North-South

Threats

- The vast depth of the plot could hinder access to any function established on the Northern portion of the site, this could also have a detrimental impact on movement over the site as a whole, possibly even isolating the Northern functions.
- The depth of the site also means that unless another means of access is established, the only means of access will be from Tsamaya Road. This may conflict with a dedicated service access.
- Crime would disrupt the function of an open building or courtyard layout and security must be resolved in order to achieve any measure of success.



Fig.72.(By Author) Panorama of the site looking towards the West



Fig.73.(By Author) Panorama of the site looking towards the North

Locality Framework

Existing Scale

The surrounding region has a generally low scale, Fig.74. The infrastructure is generally poor, where there are no pavements or public lighting. The housing development is largely informal dwellings that have filled in between government RDP houses. This has resulted in a pattern of dense sprawl with no defined edge condition and poor services.

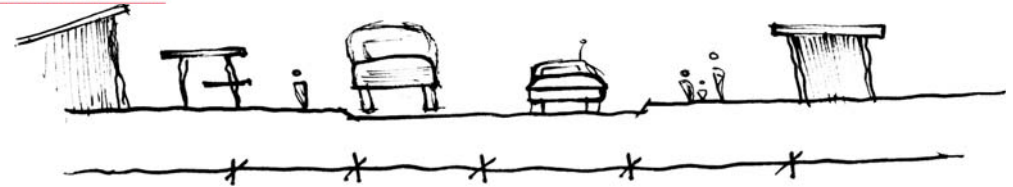


Fig.74.(By Author) Existing street section

Edges

A portion of the proposed site is an existing road reserve, therefore it is proposed that part of this reserve be used to provide a new road, linking Tsamaya road to the areas to the North. This will enable the greatest extent of the site to become accessible and therefore more fully utilised, Fig.75. This will also provide a much needed North-South connection, enabling greater access to services provided by the proposed intervention.

This new road will be able to further cultivate an edge condition and provide infrastructure to the existing residential area North of Tsamaya Rd.

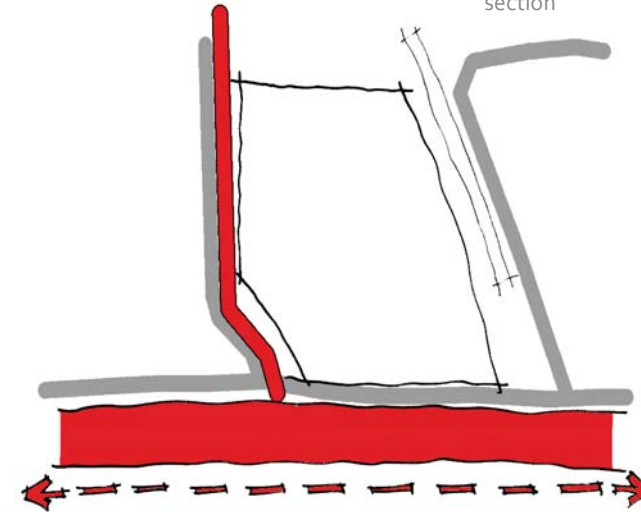


Fig.75.(By Author) Aerial view showing potential edge conditions

Proposed More Appropriate Scale

The intervention should be able to act as a catalyst for the area, linking the Nodes of the Linear Nodal Development Framework, thus promoting service provision, upgrading of infrastructure and scale along Tsamaya Road and connecting East and West Mamelodi.

The perceived scale for the area would be prompted by a definable edge at the intervention. This will be of two to three stories, Fig.76. It must be noted that the intervention should be able to communicate both with the scale as it is, and the scale as it will be as well as allowing for further future expansion with the developing scale of the area.

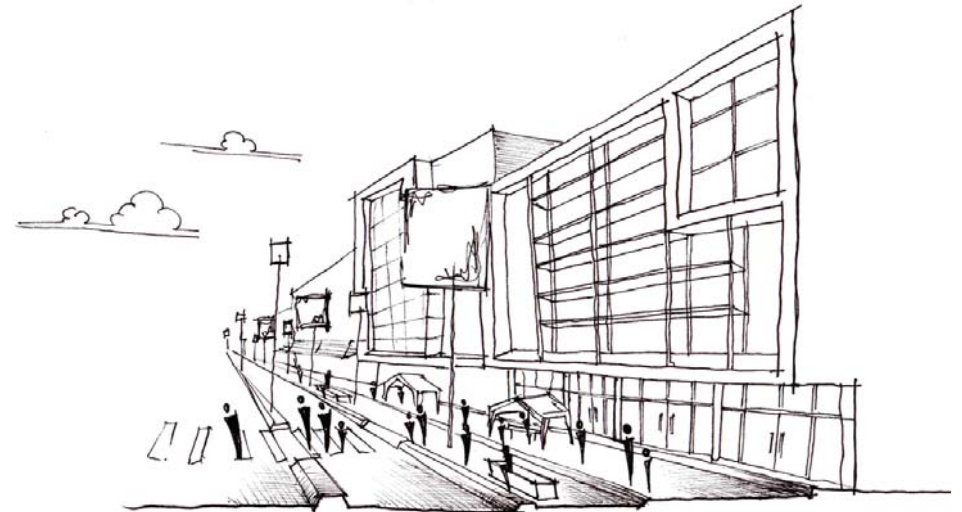


Fig.76.(By Author) Perspective showing future scale

Connectivity: Proposed Road Routes

The Western portion of the site is an existing road reserve, and a new formal route is needed to facilitate the growth of the residential area north of Tsamaya, as well as housing proposed for the site. This new road would seek to solve the potential isolation of the Northern portion of the site through improving access and connectivity. This road connects to existing roads that ultimately connect to Hans Strydom Dr.

Proposed Route A.

This solution is more desirable, providing a greater amount of transportation infrastructure, however it is also a longer route, needing more financial commitment.

The new road runs north/south and connects to R.S. Ntuli St via the formalisation of an existing desire line, Fig.77, this is a more direct route to Hans Strydom Dr. and could become a major route into the area.



Fig.77.(By Author) Proposed road route A

Proposed Route B:

This solution is the less desirable as it provides the lesser amount of transportation infrastructure, however it is a shorter route, needing less financial commitment.

The new road runs north/south and connects to Letoaba Avenue via the formalisation of an existing informal route, Fig.78



Fig.78.(By Author) Proposed road route B

Conclusion:

The proposed site is ideally situated at a corner, along a main road. The architecture that grows from the site and its relationship to the community must be able to both speak to the context in its present form and that which it has the potential to be.

It must also be able to accommodate the many varied functions required by the community, contained within in a series of spaces that are able to facilitate community gathering. These spaces must also communicate a series of thresholds that lead the user into sacred space.

The implementation of passive design is an appropriate environmental and financial response for the location. The status as a landmark structure leans towards not 'low technology' but more to a language of simple construction elements composed to form a legible, engaging architecture.



Chapter 4

Precedent Studies

Introduction

Connected Spaces

Bhadli Villiage School

Ingwavuma Orphan Care

Religious Space

Sacred Space

Chapel of Light

Chapel of Porciuncula,

The Miraculous

Glenthorne Cathedral

Shiv Temple

Our Lady of Mount Carmel

Architectural Language

Nelson Mandela Interpretation
Centre

Duduza Resource Centre

Novasun Processing and Distri-
bution Centre

Religious Symbolism

Capela Mae Africa

Instituto Missionário Das

Irmãs Do Precioso Sangue

Introduction

Various precedents have been used as informants to assist in the process of formulating an architectural approach and design argument. These examples have been chosen with the scale, function and location of the proposal in mind.

In order to build up an appropriate approach there are several different elements which must be considered. These elements are:

Connected Spaces:

Design approaches that incorporate different functions around connecting spaces that facilitate community meeting.

Religious Spaces:

The design and layout of sacred space, procession and axis. Examples of sacred spaces that are located outdoors have specifically been examined with regard to flexibility, definition of sacred space and place making.

Architectural Language:

These are examples of architectural style, construction and language that would be appropriate for the intervention.

Religious Symbolism:

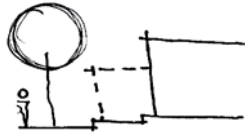
The depiction of Christian religious symbols in architecture.

Together all these elements will combine to begin to lead an architecture that will form the Multi Service Centre for Mamelodi East.

Connected Spaces

Bhadi Villiage School- 2002

Somaya & Kalappa Consultants.
Kachchh, Gujarat, India



The school formed part of a larger effort to rehabilitate a small village of agricultural workers that was destroyed in an earthquake in 2001. The school has 194 students between the ages of 6-14yrs old and a kindergarten which operates in the facility for seven months of the year. The school also houses a library, dining hall and ablutions, while the greater intervention houses a community centre, crèche and meeting areas for women. The complex has since become an informal town square for both Bhadi and the surrounding villages

The complex follows the edges of the site and forms a central courtyard where the internal and external spaces are able to flow freely into each other. Informal meetings are facilitated by covered patios, external hallways and open air rooms. Thresholds are defined through changes in level, partial covered spaces and a progression of open and enclosed areas. The walls are finished with mud plaster that the students and teachers painted.

The Multi-Service Centre for Mamelodi East will focus on formal and informal, internal and external spaces which must flow into one another as a cohesive unit, while still maintaining edges and thresholds and also facilitating community gathering on both small and large scales.

The use of thresholds through defining transitional spaces through intermediate areas is an imporant aspect. One must not enter sacred or intimate spaces directly. These intermediate areas could be interpreted either into plan or in section, either way , their function remains to prepare the user for the new space that they are about to enter.



Fig.79.(Phaiadon 2008:) Views of Bhadi Village School

Ingwavuma Orphan Care - 2008 New Offices, Hospice and Chapel

Feilden, Clegg, Bradley Studios.
Ingwavuma, South Africa

The centre is located in Umkhanyakude District of KwaZulu Natal and is the northernmost district of the province. Ingwavuma Orphan Care is a community organisation that provides physical, emotional, psychological, spiritual, economic and palliative care services to the people of Umkhanyakude, through direct support and community mobilisation to improve the quality of life.

The new hospice unit will have 10 beds for children and 18 beds for adults. The children's unit will have its own garden, day room and sensory play area.
(Isibani Sithemba , Accessed 09 May 2010)

This centre has been chosen as it successfully links varied functions through intermediate spaces in the form of connecting walkways, where they both connect and define outdoor space. These walkways facilitate the spatial definition of different functions but allow them to also communicate as one cohesive complex.

The Multi-Service Centre for Mamelodi East will incorporate a complex of buildings, housing different functions that must be linked by pathways or courtyards in order to achieve a spatial and architectural unity.

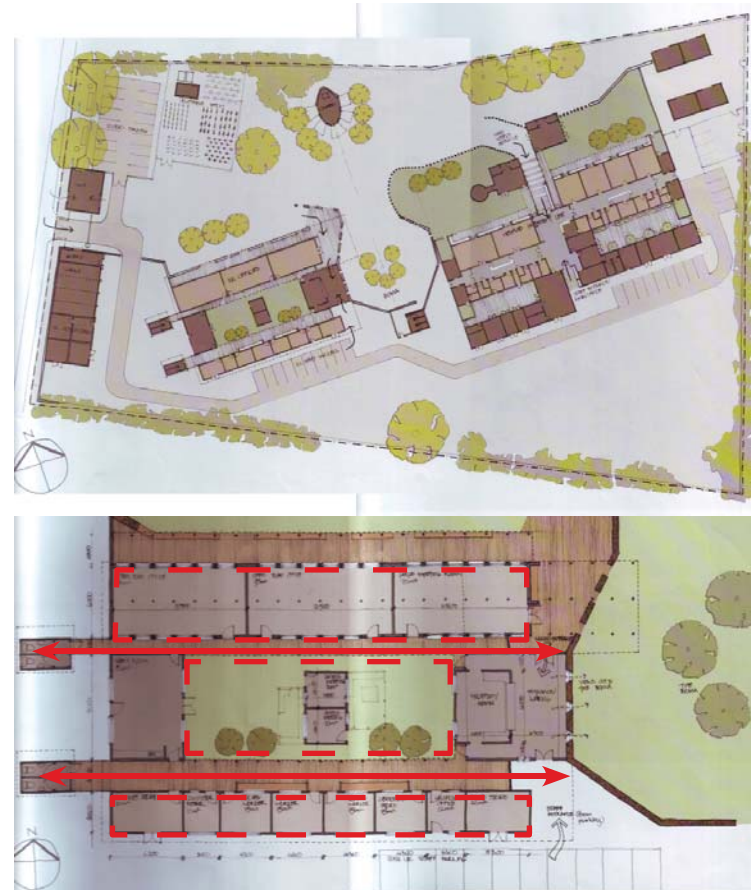


Fig.8o.(unknown:) Plans and 3D views of Ingwavuma Orphan Care

Religious Space

Sacred Space - 2008

A Community Church in Diepsloot

Jennifer Cochrane

Diepsloot, South Africa

Master's Thesis, University of the Witwatersrand

"This Thesis aims to explore the creation of sacred spaces and places of gathering to improve the everyday lives of the inhabitants of Diepsloot"

The intervention is located in the township of Diepsloot, which is a fairly new settlement and its built fabric is mostly composed of RDP subsidised housing and informal shacks. The inhabitants of Diepsloot have many social struggles to deal with, for example: *lack of employment, increase in poverty, substance abuse, prostitution, pollution, unhealthy play areas and limited access to places of recreation.* The Tented Churches and their leaders are a large force in the community, providing aid and a means of upliftment, offering counselling, skills training and food provision and clothing. *Above all, these churches provide a place of gathering where the local people can also find solace and quiet.* (Cochrane 2008)

Like Mamelodi, the residents of Diepsloot live in a highly dense environment, often with more than one family sharing a dwelling and the social and urban issues share much common ground.

This project has been chosen for the successful division of space with regard to a public edge that acts as a both a buffer and threshold space for the sacred area behind.

The Multi-Service Centre for Mamelodi East must address many of these issues while also providing for social, spiritual and commercial opportunities.

The flow of space between the public commercial edge [red], the public sacred space, the altar and chapel is of great importance, furthermore, much can be learnt from the flexibility of space in terms of the functions that can be carried out simultaneously.

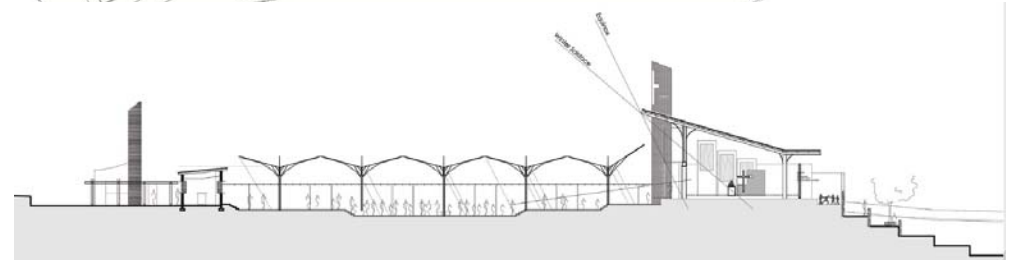
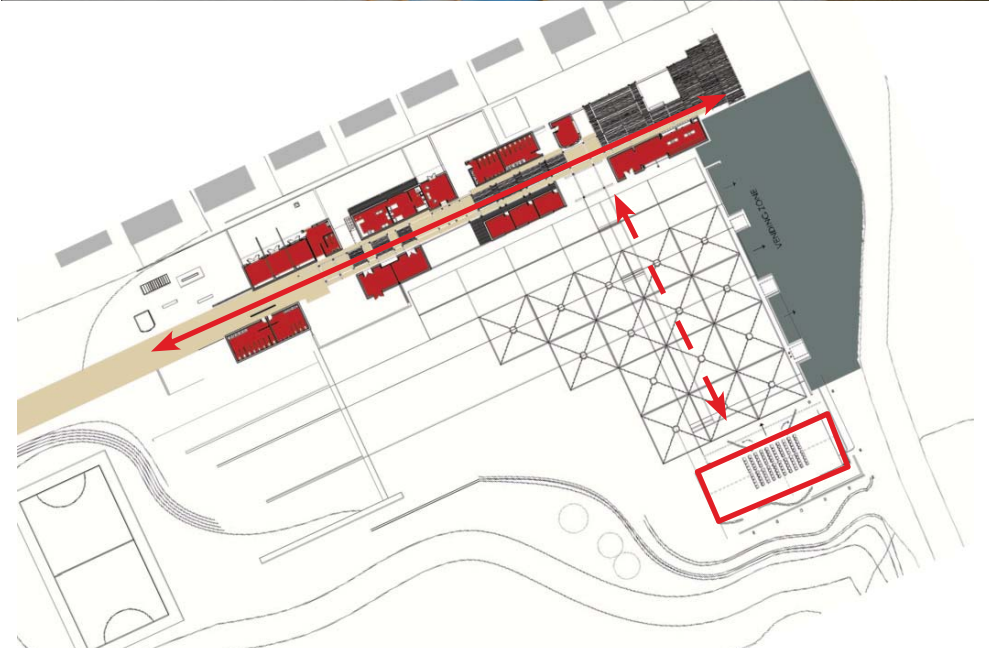
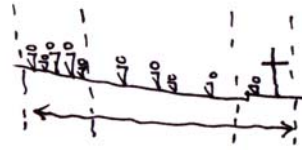
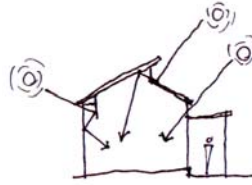


Fig.81.(Cochrane 2008) Conceptual plan and views of Sacred Space: a Community Church in Diepsloot



The Chapel of Light - 2006

Comrie-Wilkinson Architects
Vanderbijlpark, South Africa

The experience of the building is extraordinary. The architects have managed to create a sacred place in anotherwise placeless environment. (Cochrane 2008)

The building is located alongside a park and parking lots in a bleak corner of the campus of the University of Technology.

The aim of the design was to let the building create its own context, by defining external spaces by means of freestanding walls" (Deckler, Graupner & Rasmuss 2006:56)

The architects wanted to incorporate elements used in well renowned religious buildings, regardless of faith these are:

Sequences of approach and progress through space, the hierarchy and ordering of space, light, lightness of structure, the celebration of vertical elements and the use of water. (Deckler, Graupner & Rasmuss 2006:56)

The Multi-Service Centre for Mamelodi East seeks to use these elements of religious architecture, to give new meaning to communal functions, create sacred communal spaces and functions. The use of light and water is highly symbolic and their ability to express sacred space must be explored through design.

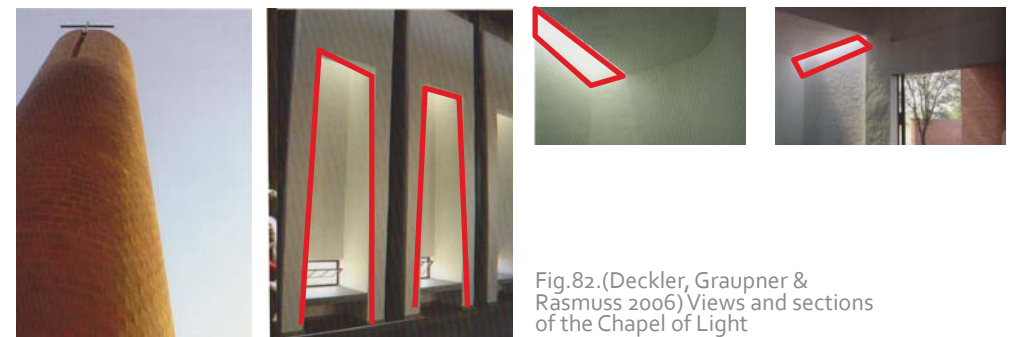
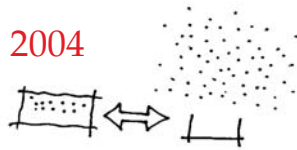


Fig.82.(Deckler, Graupner & Rasmuss 2006) Views and sections of the Chapel of Light

Chapel of Porciuncula, The Miraculous - 2004

Daniel Borilla Arquitectos
Bogota, Columbia



The Chapel is located on a plateau on the outskirts of Bogota. It is sited at the centre of a clearing that is gently sloped and surrounded by abundant vegetation. It is composed of dark stone and wood and stands out from the surrounding landscape of trees and mountains.

The walls are clad with stone tiles both inside and out, which create a sense of solidity while vertically woven timber panels contrast the horizontality of the tiles. The movable metal frames that house the timber panels create a dynamic quality to the building through both the ability to physically move and the changing quality of sunlight admitted throughout the day.

The formal nave is designed to accommodate 30 people, however when the screens are open, it transforms into a large altar for a congregation gathered in the landscape. This design has been chosen for its simplicity and flexibility of space. It uses light and heavy elements to articulate anchor walls and ground the lightweight cladding.

The Multi-Service Centre for Mamelodi East will incorporate a central worship space that is flexible and is able to accommodate different events and size of congregations. Rituals involving procession through the complex and landscape to worship is an important aspect in terms of definition of space and place making.

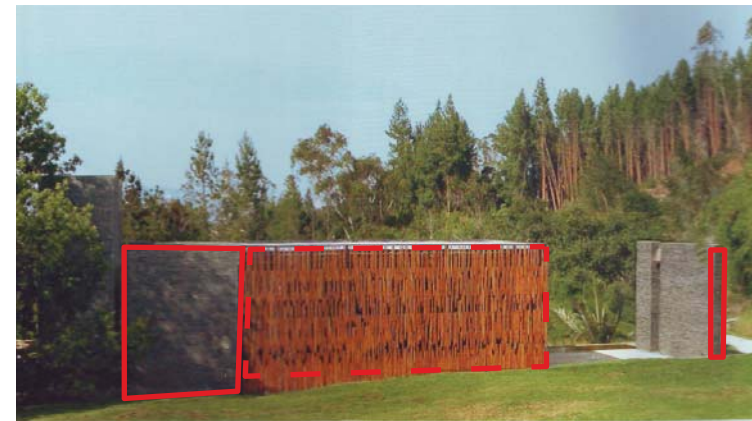


Fig.83.(Phaiadon 2008:) Views and plan of the Chapel of Porciuncula, the Miraculous

Glenthorne Cathedral - 2002

Harber & Associates
Kokstad, South Africa



The Cathedral, located in Kokstad, KwaZulu Natal was designed to be ecologically friendly and is composed of materials indigenous to the surrounding area and was constructed by local builders. The building was commissioned by the Church of the Province of South Africa.

There is a 50 metre-long nave that is open to the sky, leading to the main structure which is made from stone and thatch. The focal point is a semi-circular stone chapel that surrounds the altar and acts as the chancel and sanctuary for a much larger cathedral.

The open-air nave that begins at the bottom of a slope is defined by two parallel trellises of poles. The pathway is split over seven platforms which are symbolic of the 'stations of the cross'. For large gatherings and celebrations a shade cloth is suspended above the nave. There is a font at the entrance of the cathedral which is used both for sprinkling and total immersion baptism.

(Network of Earthkeeping Christian Communities in South Africa, Accessed 28 April 2010)

The Multi-Service Centre for Mamelodi East requires a defined worship space that is not enclosed by formal walls but has a strong sense of axis and procession, and is still highly symbolic. It must be a space that is able to house both small and large gatherings.

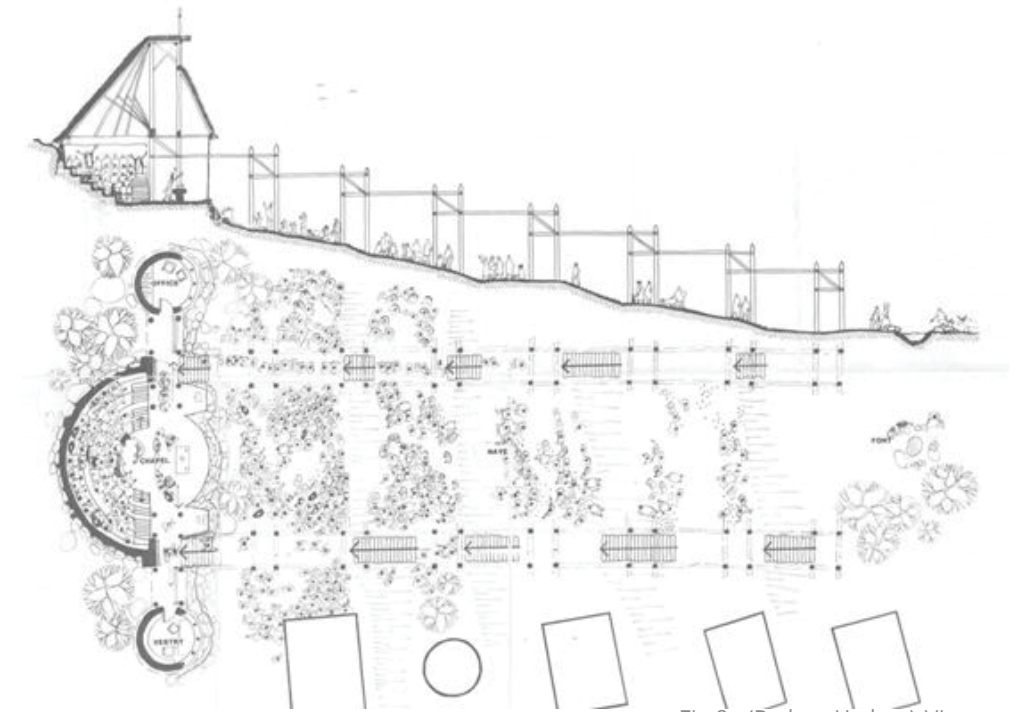
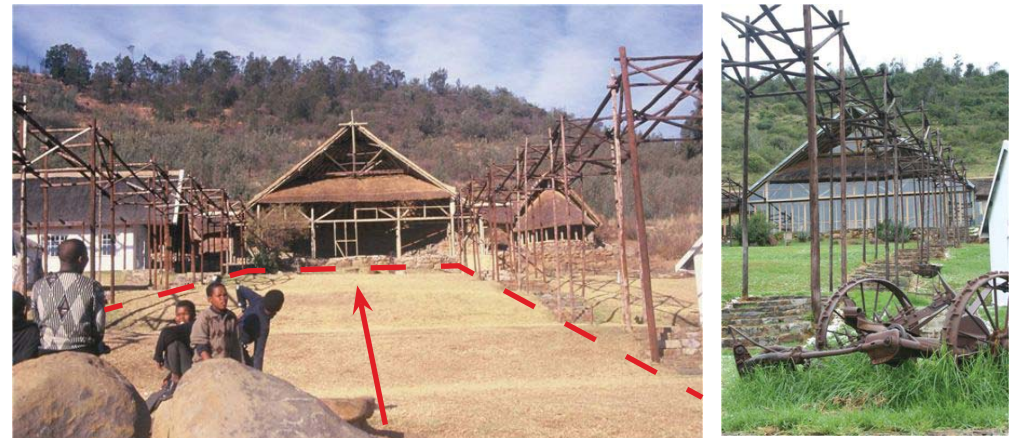
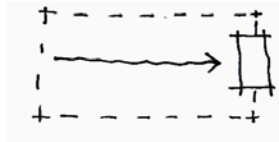


Fig.84. (Rodney Harber:) Views and plan of the Glenthorne Cathedral

Lady of Mount Carmel - c1980

Roman Catholic Church
San Diego , USA



For 20 years this outdoor Church in McGonigle Canyon served the illegal immigrants that found makeshift shelter nearby and employment in local tomato fields. The Church was founded by the Roman Catholic Church in the 1980's and its altar is located alongside a stream and features a concrete altar covered in tiles portraying the Virgin of Guadalupe. The nave consists four rows of benches and six picnic tables.

As of 2006 the canyon was surrounded by large houses whose residents wanted the squatters removed. In December the same year after heavy rains, the Church met and faced its congregation's removal and the Church's destruction which was to be carried out as soon as the soil had dried out, allowing access to the site.

(The Associated Press. Accessed 30 April 2010)

This example was chosen for its simple placemaking in its surroundings and an example of defining sacred space through use.

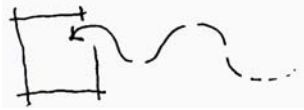
The Multi-Service Centre for Mamelodi East requires an outdoor worship space that is defined by its axis and a formal altar. Ultimately this space will be defined as sacred through use and perception as such.



Fig.85.(The Associated Press)
Views of the Altar of the Lady of
Mount Carmel

Shiv Temple- 2004

Sameep Padora & Associates.
Shindewadi, Maharashtra, India



The site is located in a wooded area of a rural village and houses an existing makeshift enclosure for a small idol. The design required a more permanent structure and the architects looked to traditional Hindu typologies. The elements were simplified to their basic forms and embodied by a 'single, tapering volume rising from the earth'. There is a square, glass skylight at the apex of the form. The structure was built with locally sourced materials by volunteers from the village.

To the South of the structure an amphitheatre is formed by cutting five levels of seating into the hillside, while to the east a ritual path is defined by two stone walls. This path is levelled in the space between the structure and the amphitheatre to form a community space that is used for both social and community gatherings.

The Multi-Service Centre for Mamelodi East requires a community space and ritual paths that are open, yet defined to both facilitate ritual and spiritual preparation.

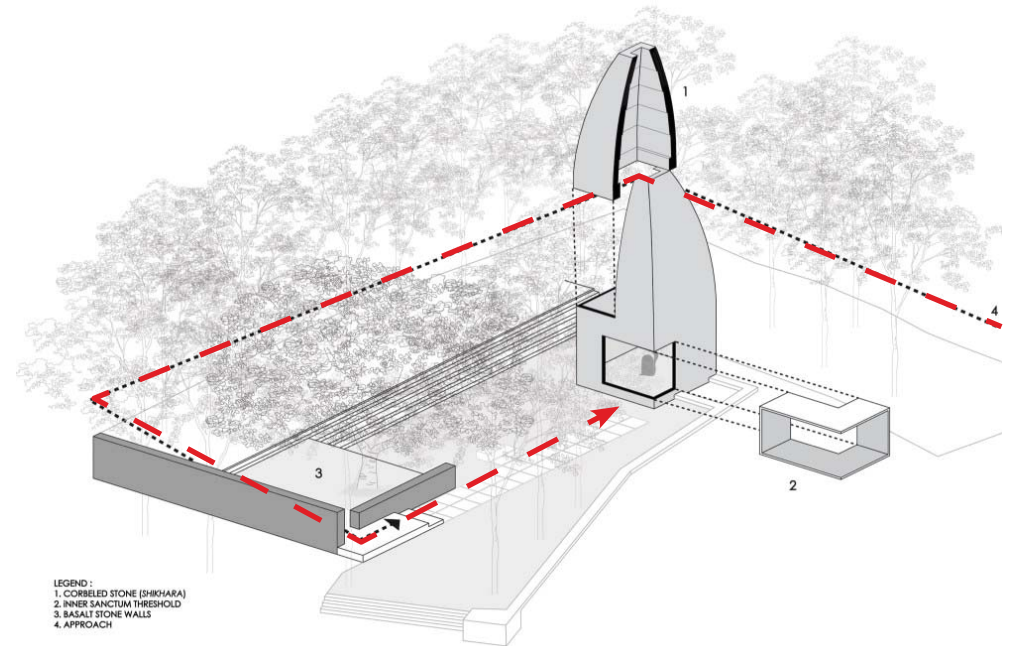
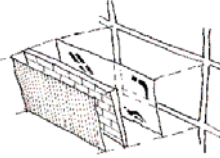


Fig.86.(Arch Daily, Accessed 24 October 2010) View and plan of the Shiv Temple

Architectural Language

Nelson Mandela Interpretation Centre - 2005

Peter Rich Architects
Alexandra, South Africa



Located in the Alexandra Township in Gauteng, the spatial design and materials chosen are taken from the organic yard and street structure of the area. The design reflects both civic and domestic scales and is able to both relate to its surroundings and serve as a landmark. This is done through the choice of materials, careful design of spaces and scale.

A dialogue is set up between rural, handmade, material finishes and urban, recycled, manufactured, waste materials, examples of which are resourcefully displayed in the physical fabric of Alexandra.

Deckler, Graupner, Rasmuss 2006:49

The Multi-Service Centre for Mamelodi East requires a scale that is able to become a landmark and a physical expression of possibility for the area, it must also allow for transformation and growth over time. The construction language is simple and legible, using a steel frame and locally sourced infill materials.

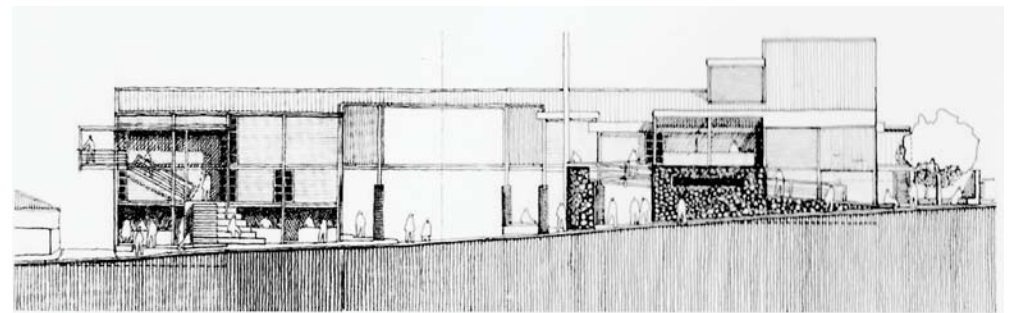
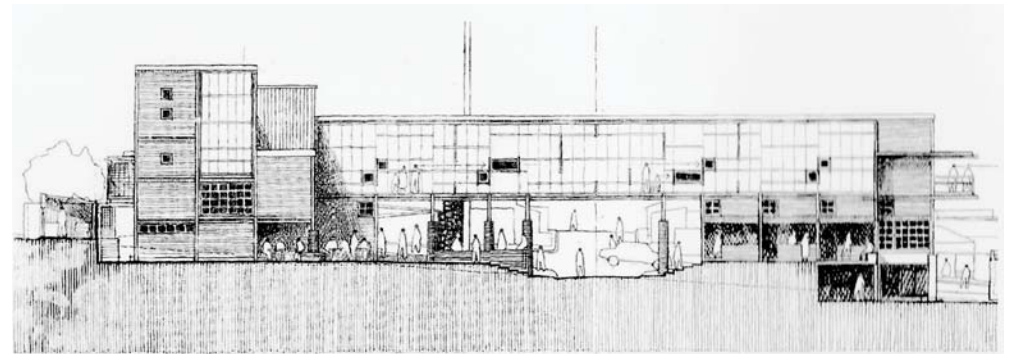


Fig.87.(www.peterricharchitects.co.za.) View and elevation of the Nelson Mandela Interpretation Centre

Duduza Resource Centre- 1990

Noero Wolff Architects
Duduza, South Africa



The resource centre located in the township of Duduza was designed to perform both educational and community functions and encompasses a variety of uses. The intention being that the facility was to be capable of future adaptation as a community college.

The Centre is accessible at all hours by all members of the local community. The facilities are arranged along a linear spine, that reflects the scale and ambience of the local streets. The adjoining glass-fronted 'shops' house various community projects and teaching spaces. There is an open courtyard half-way along the main spine, which is defined on one side by a two storey administration building which acts as the civic heart and spatial focus of the scheme. It also provides an anchor for future expansion.

Responses to climate articulate the main access-way and covered walkways defining routes. (Slessor, Accessed 9 August 2010)

The materials used are able to create emphasis on horizontal and vertical elements while the roof lines create a dynamic element.

The Multi-Service Centre for Mamelodi East requires a central courtyard which will be the spatial focus of the intervention and a linear public edge to encourage and engage with the prominent Mamelodi street culture. The centre also accommodates many varied community functions which are accessible. The intervention will need levels of security both passive and physical which will enable elements to be opened or closed to facilitate a balance between safety and access.

The industrial language of the structure is softened by the use of timber elements. This industrial nature will be able to relate to, yet be different from its informal surroundings.

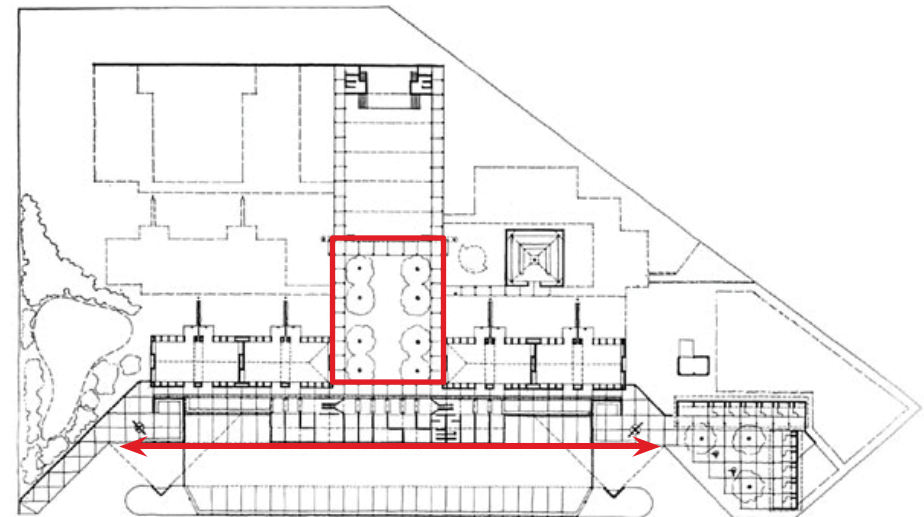
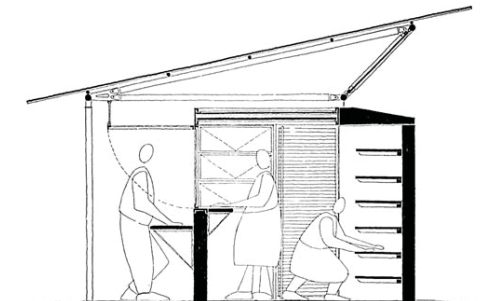
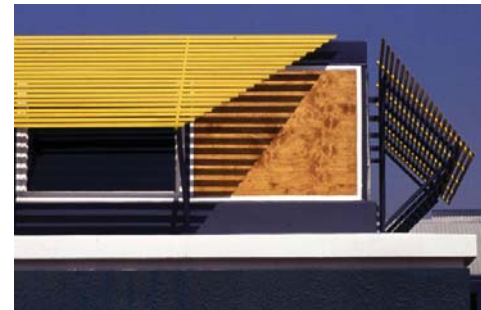


Fig.88.(www.noerowolff.com:)
Views, section and elevation of
the Duduza Resource Centre

Novasun Processing and Distribution Centre - 2008

Neo Dimensions Architects
Midrand, South Africa



Novasun is the major supplier of fresh produce to Woolworths. Their processing and distribution centre was built in Midrand. The design consists of 6,000 square metre cold room and supporting facilities. (Neo Dimensions Architects. Accessed 19 October 2010)

The aesthetics of the design are composed of simple elements and materials that are assembled to create an architecture that has both interest, through varied materials and balance through composition.

The structure has a solid base with a light roof that appears to float above it. The roof as an element becomes a horizontal plane.

The design was chosen as it reflects the desired architectural aesthetics, a balance between different materials and a strong sense of horizontality.

The design is wall dominated and articulating lighter infill and detail materials add interest without overshadowing the simplicity of design.

The Multi-Service Centre for Mamelodi East will incorporate solidity and transparency to define sacred and public areas. The roof plane will define scale and spatial hierarchy as well as forming a horizontal plane.

The language will be industrial but incorporating textured and natural elements to soften what may otherwise become harsh spaces.

In a spatial layout that requires long edge conditions to define space, articulation and detailing of materials become features of interest and facilitate a diversity of spaces to occur.

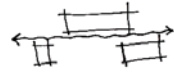


Fig.89.(<http://www.neodimensions.co.za/>) Views of the Novasun Processing and Distribution Centre

Summary



Bhadli Villiage School- 2002
Somaya & Kalappa Consultants.



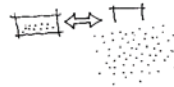
Ingwavuma Orphan Care - 2008
Feilden, Clegg, Bradley Studios.



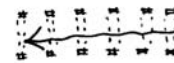
A Community Church in Diepsloot - 2008
Jennifer Cochrane



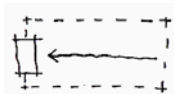
The Chapel of Light - 2006
Comrie-Wilkinson Architects



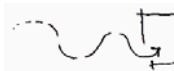
Chapel of Porciuncula, The Miraculous - 2004
Daniel Borilla Arqitectos



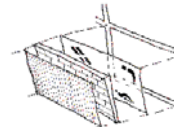
Glenthorne Cathedral - 2002
Harber & Associates



Lady of Mount Carmel - c1980
Roman Catholic Church



Shiv Temple- 2004
Sameep Padora & Associates.



Nelson Mandela Interpretation Centre - 2005
Peter Rich Architects



Duduza Resource Centre- 1990
Noero Wolff Architects



Novasun Processing and Distribution Centre- 2008
Neo Dimensions Architects

Religious Symbolism

Capela Mae Africa - 2003

Jose Forjaz
Maputo, Mozambique



Fig.90.(www.joseforjazarquitectos.com) Views and sections of the Capela Mae Africa

Instituto Missionário Das Irmãs Do Precioso Sangue - 1997

Jose Forjaz
Maputo, Mozambique



Fig.91.(www.joseforjazarquitectos.com) Detail views of Instituto Missionário Das Irmãs Do Precioso Sangue

Tokorozawa Catholic Church Cross - 2009-

Kensuke Watanabe
Japan



Fig.92.(<http://www.kwas.jp/English/>) View of the cross of the Tokorozawa Catholic Church

Chapel of the Holy Cross- 1957

Marguerite Brunswig Staude
Sedona, USA

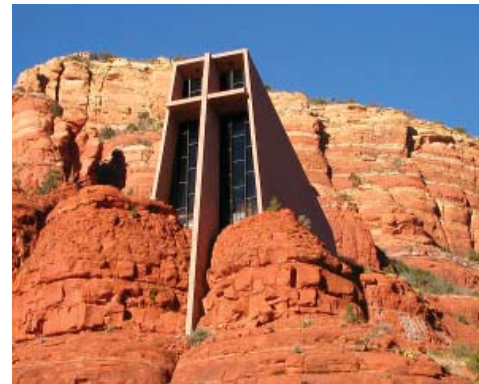


Fig.93.(<http://www.arizona-leisure.com/chapel-of-the-holy-cross.html>) View of the Chapel of the Holy Cross

Church of the Light - 1989

Tadao Ando
Japan



Fig.94.(<http://anuradhachatterjee-arch1201-2009.blogspot.com>) Internal view of the Church of the Light



Chapter 5

Proposed Schedule of Accommodation

Population estimates for Mamelodi range from two to four million and the Mandela Extension alone might contain more than 200 000 people.

It is assumed that the average number of units [dwellings] in the target area of Mamelodi East per ha is 75, and the average number of people per unit varies between 4.8 and 8.6 people per unit [Schroonrad 2000: 1] then the average assumed figure is 6.7 people per unit .

[Average number of units] x [Average number of people per unit]
= 502 people per ha.

Thus the total population in the target area is approximately:
1300 ha x 502 people = 652 600 people

If just 40 % of the target population visit the centre in a given year:
261 040, this is approximately 700 people per day.

Furthermore it is said that the churches of Mamelodi accommodate between 300 and 1000 people for services (interview).

The proposed accommodation is derived from both the services that are deemed to be lacking in the area and the services that the local Churches provide to their communities.

Mixed use, social and emergency housing have been proposed for the Northern portion of the plot. This is deemed to be appropriate due to the sheer density of dwellings that have been constructed in the area. This housing proposal would be able to assist those in need of any or better accommodation. The construction of housing would knit the site together with the rest of the urban fabric as well as providing long term job creation.

- Church/ sacred space
- Hall
- Altar
- Ablutions [to comply with NBR part P]
- Soup kitchen
- Youth initiative
- Class rooms or small meeting spaces
- Day care centre
- Counselling room
- Library and resource centre
- Satellite in clinic
- Areas for informal trading to occur
- Spaza shopping
- Police box
- Legal aid
- Intensive agriculture & floraculture (make good and improve on existing)
- Staff housing
- Building and trade training
- Bakery
- Recycling depot
- Junior basketball court: 22.55m x 12.8m
- Social and emergency housing (on Northern part of plot –proposed)

Layout of Proposed Housing

As housing is not the focus of this thesis, social housing is proposed for the Northern portion of the site allowing for the densification of this lost space. It is proposed that there is a defined Western edge condition along the proposed road through live-work units.

The layout is adapted from an existing design for Walter Sisulu Square Precinct by Housing and Development Services and ASA Architectural Design, Fig.96

.Unit Design

The Units chosen are from the Royal Maitland Development by Jac Snyman, JS Associates, Architects and Urban Designers, Fig.95. The units easily allow for layouts that articulate according to topography, as well as conversion to live-work accommodation.



Fig.95.(The Social Housing Foundation, 2005) Site plan of Walter Sisulu Square Precinct

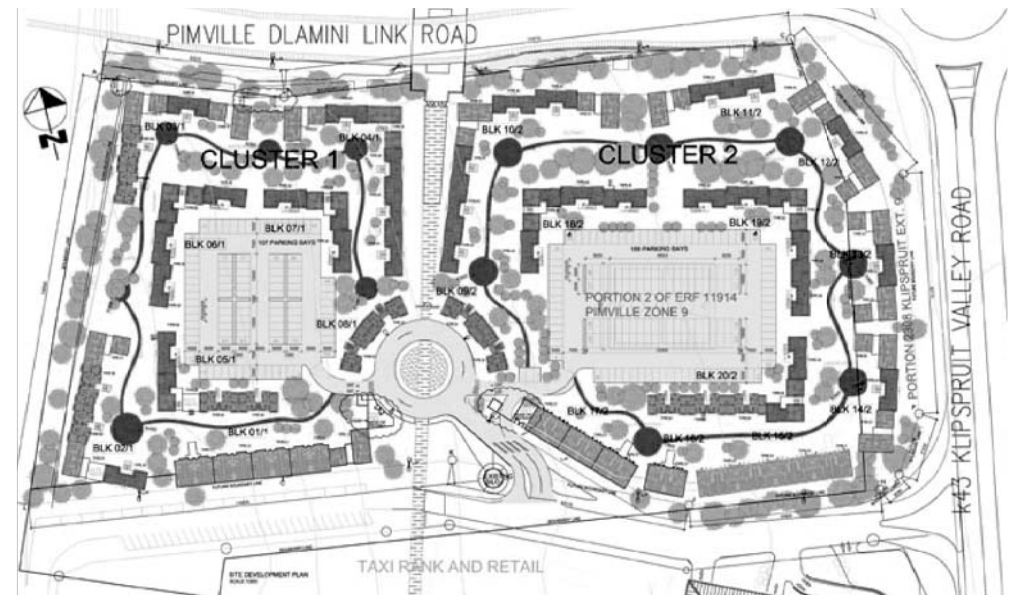


Fig.96.(The Social Housing Foundation, 2006) Site plan of Walter Sisulu Square Precinct



Fig.97.(By Author) Site plan showing layout of proposed housing



Chapter 6

Concept & Design Development

Concept Development

The Church as a public building

Cores

A Central Core of the Architectural Project which forms the anchor for the service related functions to take place, Fig.98.

- A Central Core for the Community - a catalyst for change and development-

Spaces Between

Community does not happen within the buildings themselves, architectural relationships must facilitate community, Fig.99.

These Spaces must:

- Be activated both on their periphery and within the spaces created
- Be easily accessible
- Be scaled to the pedestrian
- Facilitate interpersonal interaction

Enabling Architecture

The Core/s of the Architectural intervention must be able to both function as a centre alone and also to provoke and encourage further development of additional functions and expansion of the centre, Fig.100.

Human Energy Flow

- Flow of Human Energy from the Core outwards into the Community
- Flow of Human Energy from the Community inwards into the Core

A symbiotic relationship must be attained from the conception of the project in order for it to be sustainable and attain relevance within the community, Fig.101.

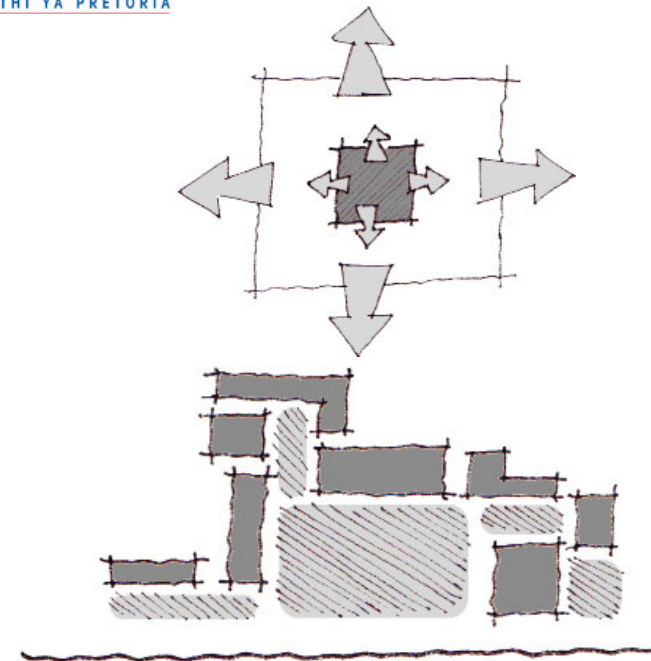


Fig.98.(By Author) Concept: Cores

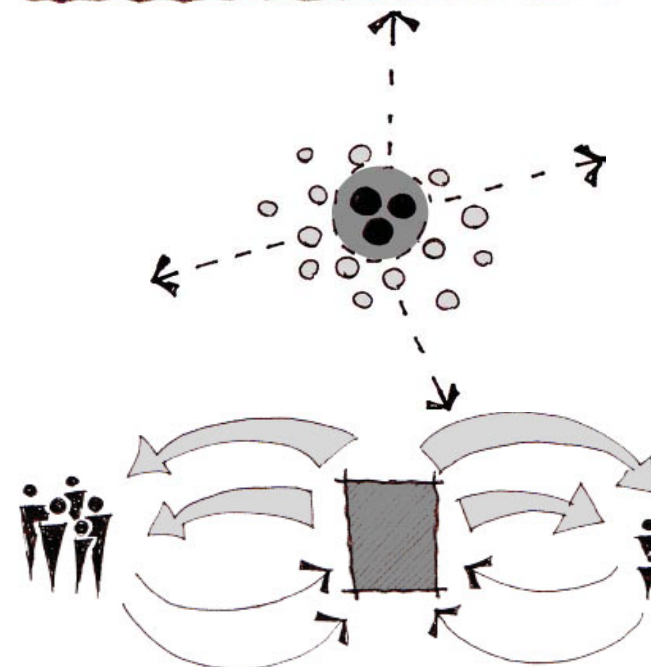


Fig.100.(By Author) Concept: Enabling Architecture

Fig.101.(By Author) Concept: Human Energy Flow

The concept of Photosynthesis, Fig.103, is a natural self sustaining, cyclical process that mirrors the human energy flow that is necessary to sustain the intervention as well as a metaphor which captures the social aim of the intervention. A system cannot survive if the energy flow is only outgoing, thus the building must provide the vehicle for the community to begin the process of growth and upliftment through mutual interaction with the services rendered. This interaction occurs on several levels:

Community Services

- The kitchen, classrooms and day care are staffed and managed by the local community

Production

- Even Jesus was a carpenter and through the teaching of trade and agricultural skills. This knowledge can be put back into the centre and the community.

Sacred Space

- Provides a platform for many community functions and gatherings to take place while also providing a format for spiritual renewal to take place

Commercial Trade

- Forms a part of additional financial support
- Promotes pedestrian interest, movement and interaction with the intervention at its most secular level

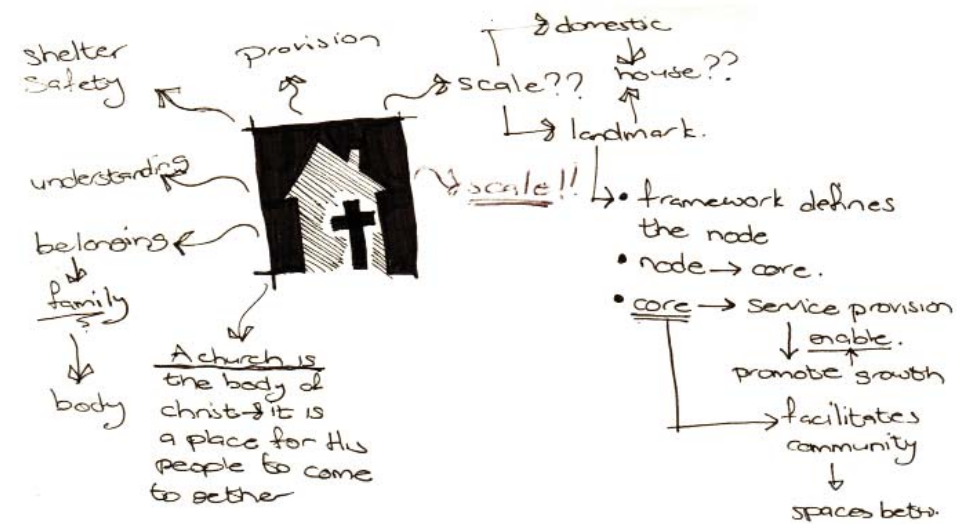


Fig.102.(By Author) Concept: The Church as a House of a Community

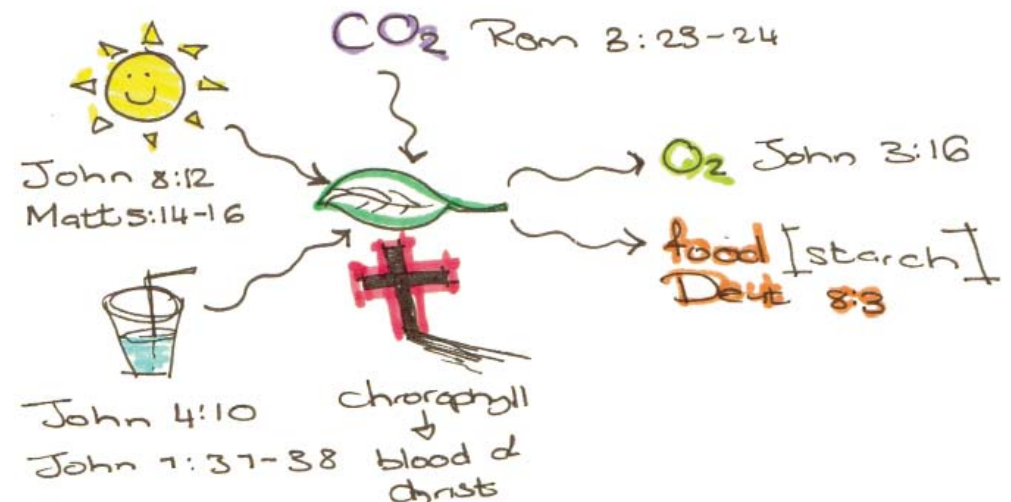


Fig.103.(By Author) Concept: Photosynthesis

Design Development

Site Constraints & Location of Intervention

The location chosen for the intervention is defined by, Fig.104 :

- An existing concrete canal
- Agriculture to the North
- Tsamaya Rd which provides great edge potential to the South
- Existing service access to the East
- Proposed new road, with further edge potential to the West

Four of the six existing agricultural sheds that are in the best condition are to be made good and moved alongside the existing service access road in order to allow for the best road frontage along Tsamaya Road as possible while also facilitating ease of access for service vehicles collecting goods grown within them.

Entrance into a Christian sacred space is traditionally West of the Altar. The public entrance must be located along the proposed new road, running North-South or to the western portion of Tsamaya Rd.

Service access will remain on the east of the Altar, as this is the secular portion of the proposal, it is thus deemed unnecessary to obey religious convention for the function.

Design Informant: Lack of Edge Condition

The local area of Mamelodi East surrounding the intervention is lacking in a defined edge condition, Fig.105. This intervention seeks to create a localised commercial public edge that will have a catalytic effect in stimulating edge growth in the area, Fig.106.

The public edge becomes the main element of the catalytic node required in the Linear Nodal Development Framework.

Zones on Site

There should be a functional connection between distinct areas of the site, Fig.107:

- Public: busy commercial and social space
- Sacred: Social, yet reserved, strongly structured area
- Natural: Agricultural landscape

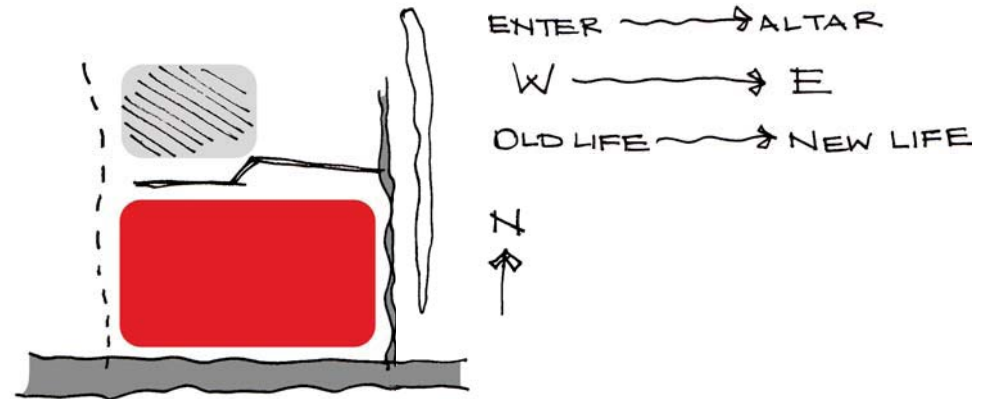


Fig.104.(By Author) Site constraints

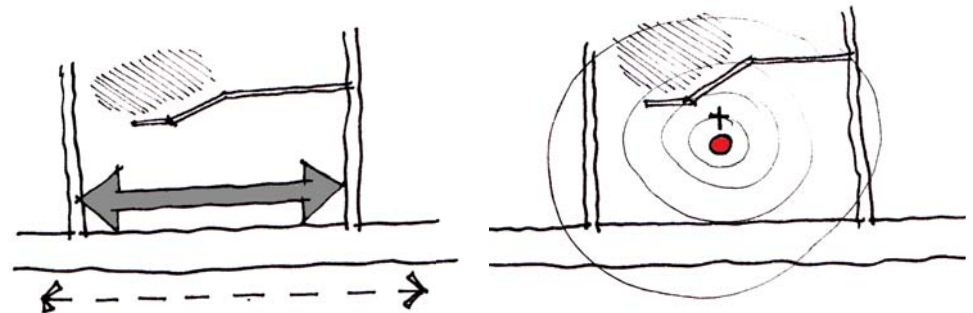


Fig.105.(By Author) Design Informant- Lack of Edge Condition

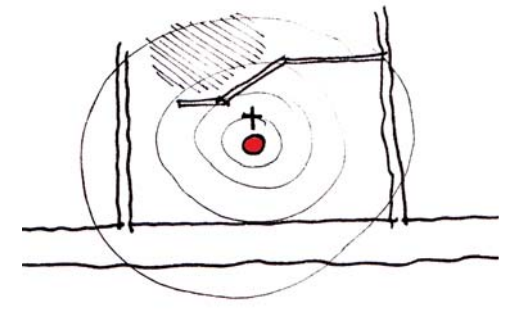


Fig.106.(By Author) Catalytic Node

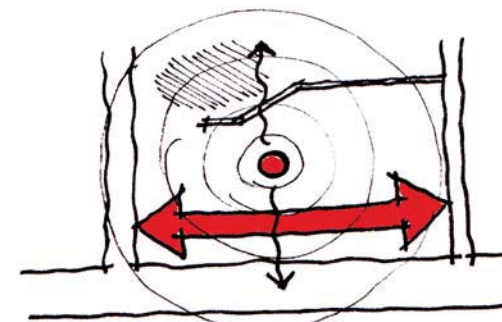


Fig.107.(By Author) Relationship between major core functions

Design Informant: Development

The catalytic edge, Fig.108, would serve to:

- Spark commercial densification along the bordering edges
- Financially support the religious function
- Bring people in contact with the Church
- Create a functional buffer zone

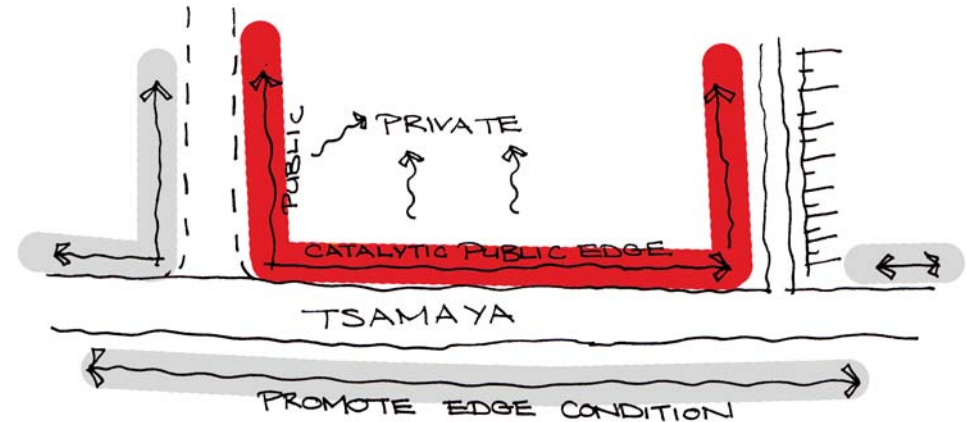


Fig.108.(By Author) Development of Design Informant

Flow of Space I

The flow of space should develop as indicated, Fig.109, thus the public does not enter directly into sacred space.

An entrance can either be clearly visible as you approach the house or you can be lead into a secluded courtyard entrance. The courtyard entrance provides a more gradual transition between public exterior and private interior. [Matthews 2007:26]

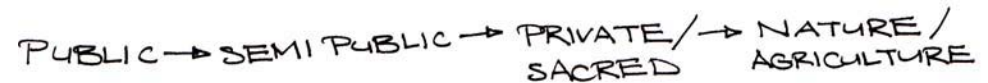


Fig.109.(By Author) Conceptual space flow diagram

Flow of Space II

Due to the varied functions housed in the same development proposal, the planning needs a space or structure that is able to both link and separate the different areas, Fig.110.

This building is functionally suited to the hall because:

- Its volume allows for it to serve as a background to, and an extension of the sacred space
- It is also able to be both sacred and secular in function
- It can open on many different sides, providing the most flexibility of space

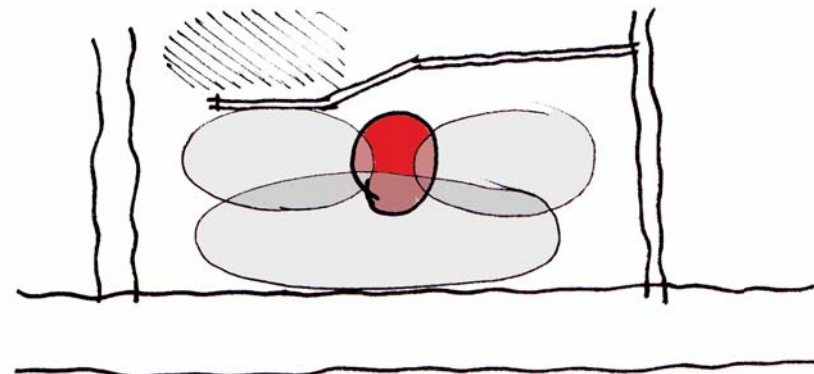


Fig.110.(By Author) Conceptual relationship of spaces

Sacred Space: Planning

Basilican Church Planning, the most recognisable Christian Church typology follows certain conventions:

- A major axis running East - West, Fig.111.
- The entrance is on the Western wall
- The altar on the Eastern end, Fig.112.
- A central nave, along the longitudinal axis, focused on the altar
- 2 aisles on either side of the nave
- The planning is usually symmetrical about the central axis

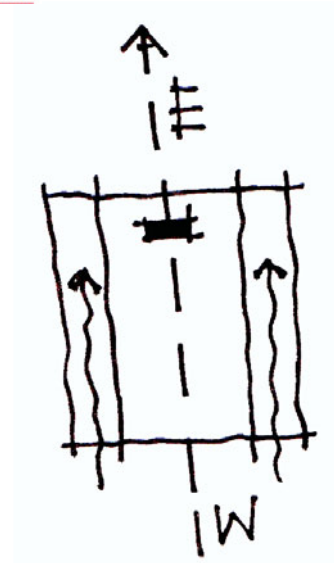


Fig.111.(By Author) Sketch showing basic elements of church planning

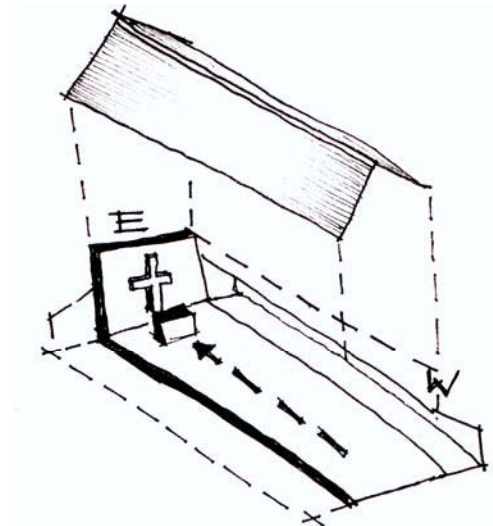


Fig.112.(By Author) Exploded sketch showing basic elements of church design convention

Flow of Space: Development I

The proposed functions are divided into 3 'sacred' zones:

- Sacred healing and community
- Sacred Church
- Sacred Production

These are edged by a public commercial zone

These zones develop a functional flow along a linear axis, defined by both the sacred space and the commercial edge.

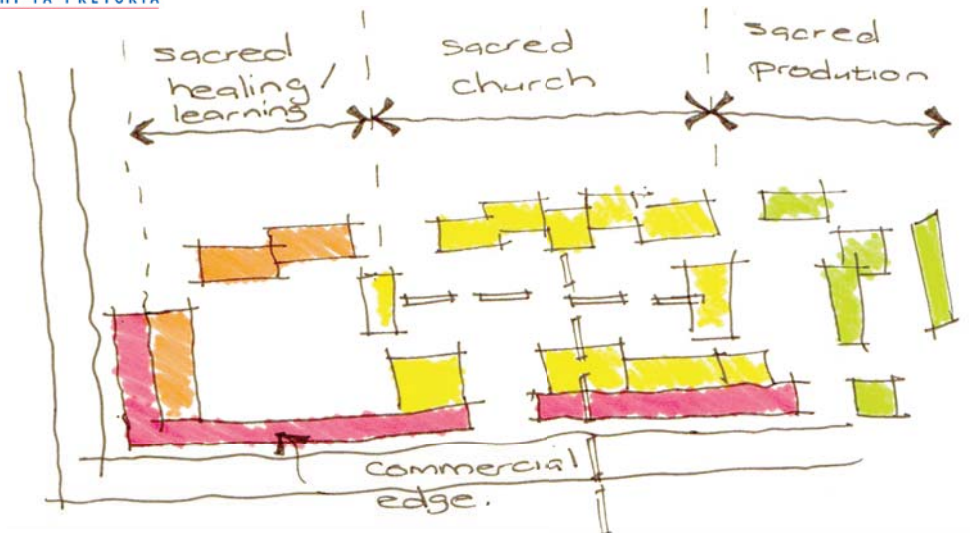


Fig.113.(By Author) Sketch showing development of planning

Flow of Space: Development II

The functional zones described above facilitate internal edge conditions and courtyards. These intermediate spaces that are formed allow for transitional spaces, between:

- Public and sacred, there is a preparation space
- Sacred and agriculture, there is an edge, but not a boundary
- Public and production, there is a recreational space
- Production and agriculture, there is a circulation space.

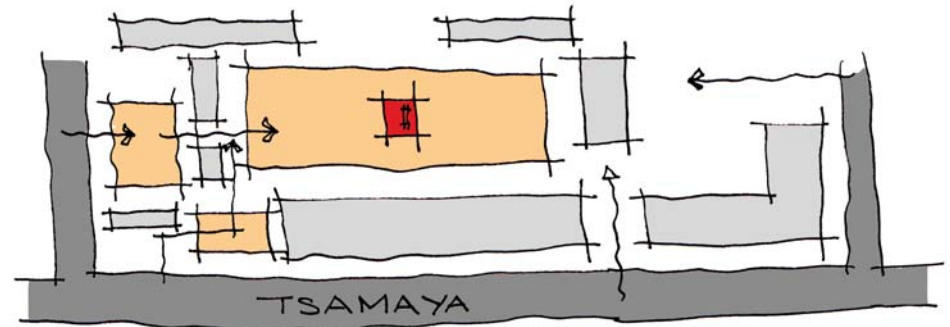


Fig.114.(By Author) Sketch showing further development of planning

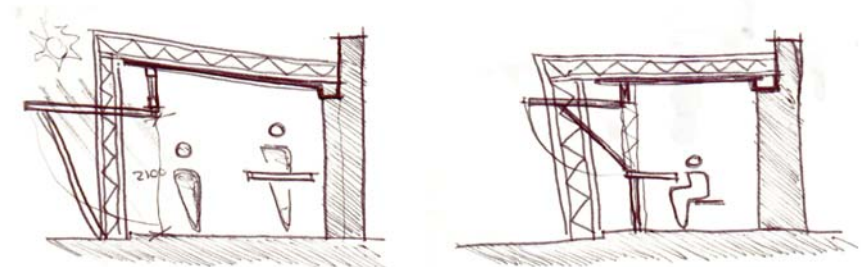
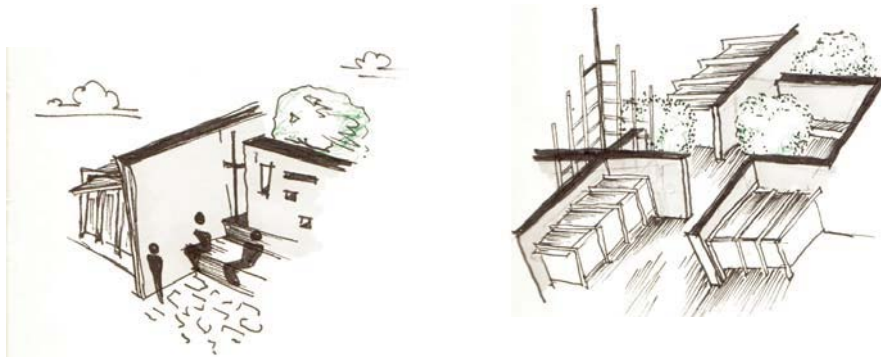


Fig.115.(By Author) Process sketches

Development of Layout

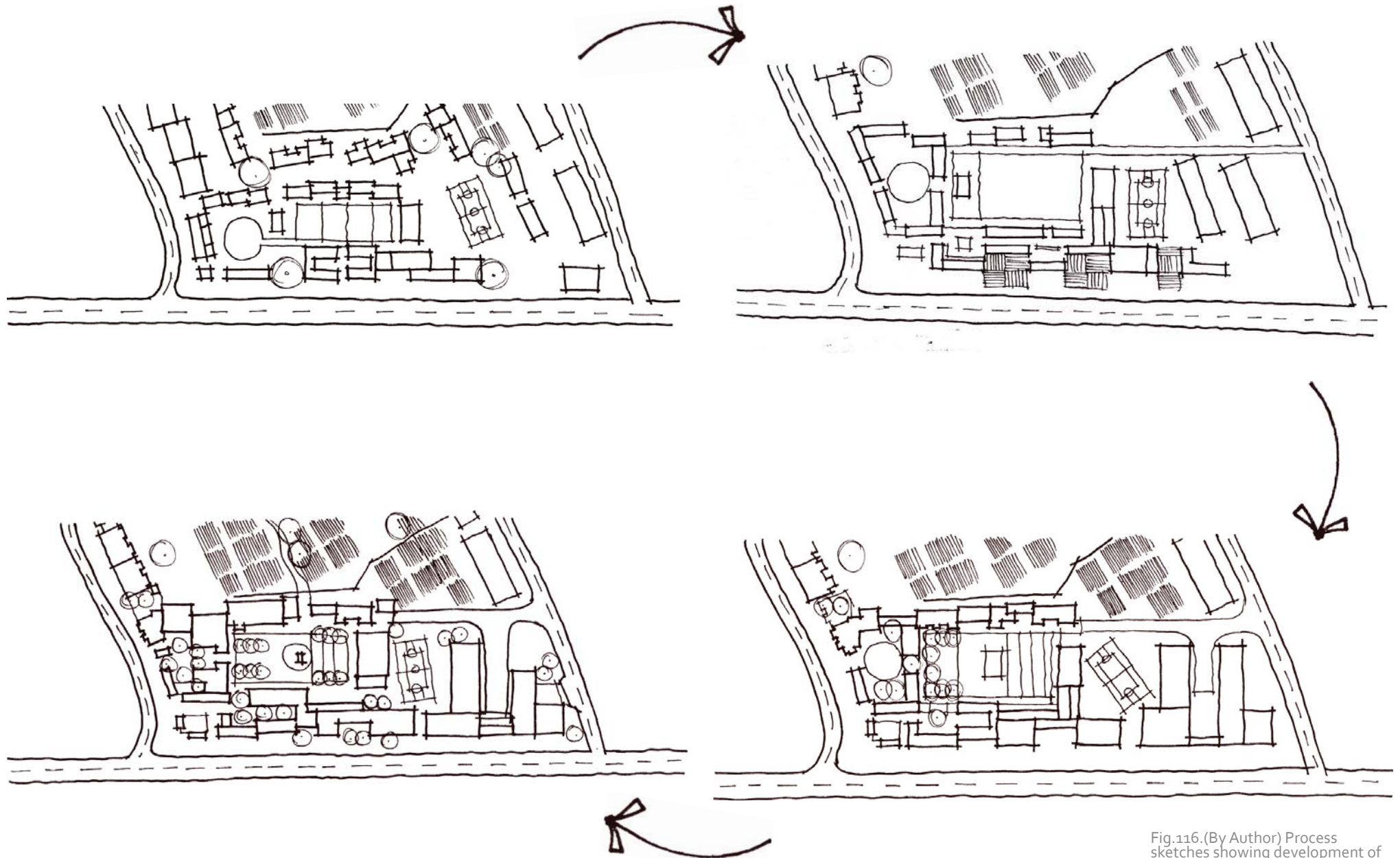
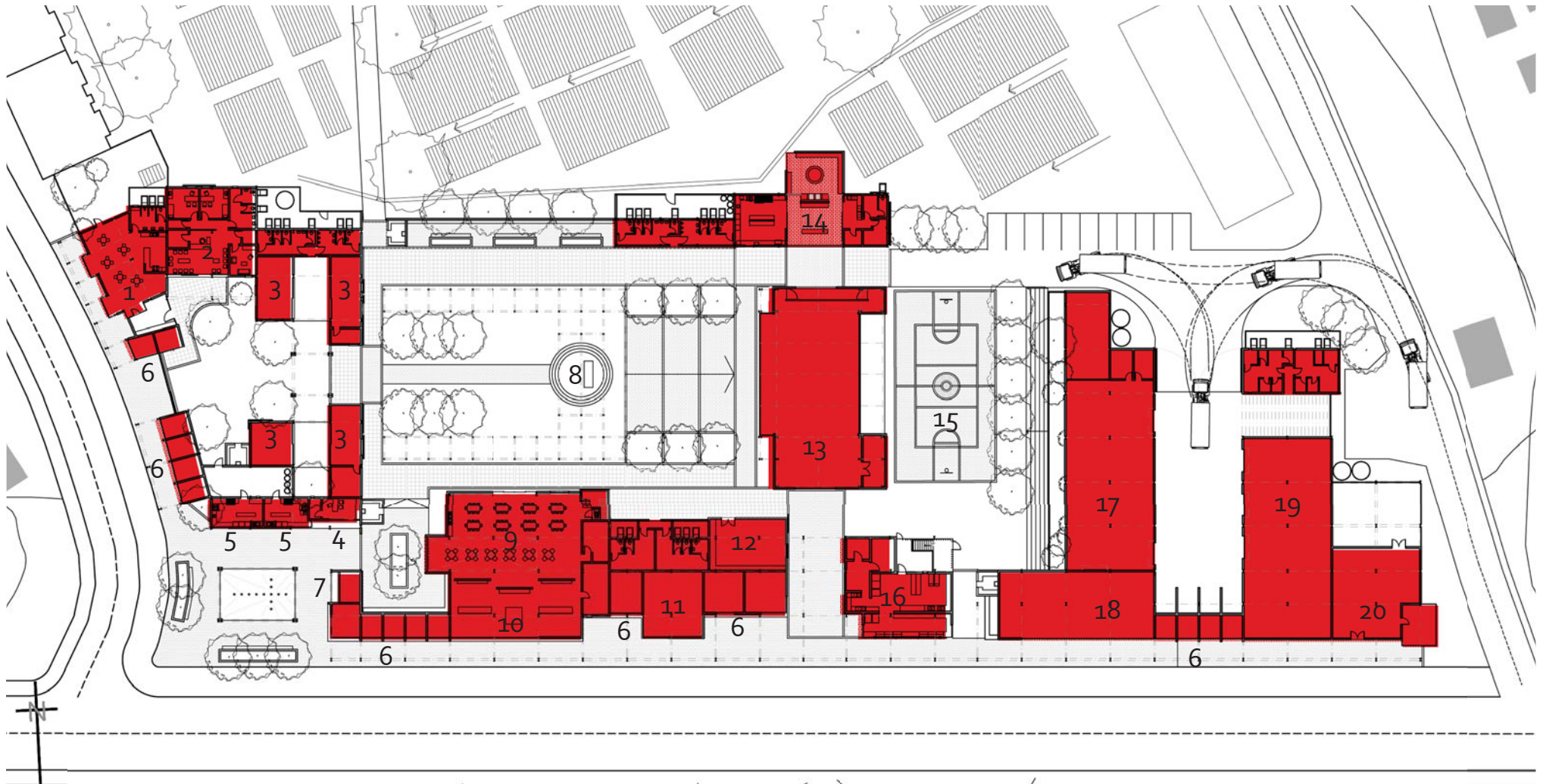


Fig.116.(By Author) Process sketches showing development of planning

Layout of Accommodation



- | | | | |
|-------------------------------|-------------------|----------------------|------------------------------------|
| 1. Daycare | 6. Shops for rent | 11. Spaza shop | 16. Bakery |
| 2. Satellite clinic | 7. Police box | 12. Store room | 17. Produce packing and processing |
| 3. Class/ small meeting rooms | 8. Altar | 13. Hall | 18. Market space |
| 4. Information | 9. Craft training | 14. Kitchen | 19. Building trade training |
| 5. Food stalls | 10. Craft selling | 15. Basketball court | 20. Recycling depot |

Fig.117.(By Author) Plan showing the location of functions

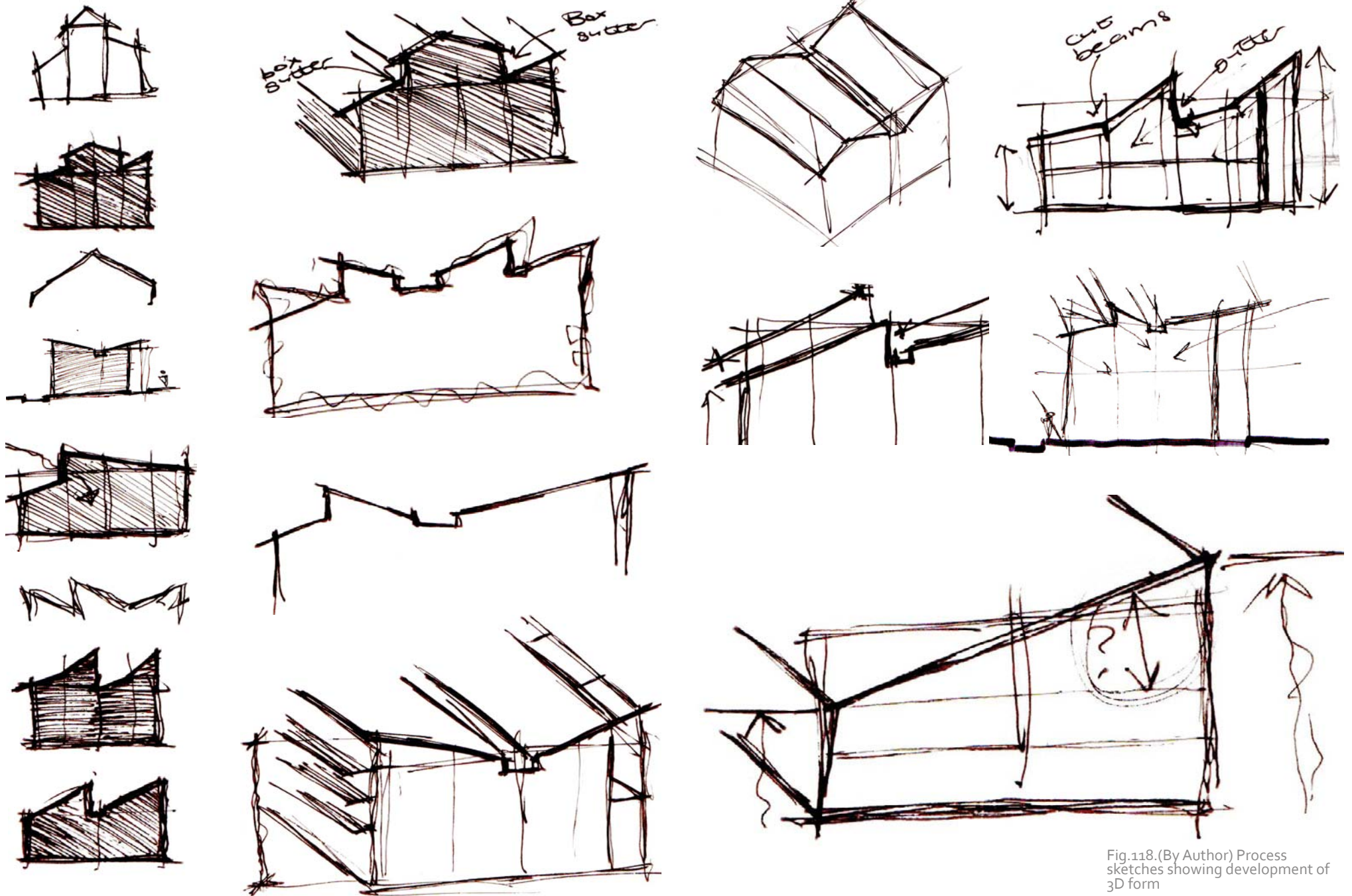


Fig.118.(By Author) Process sketches showing development of 3D form

Scale of the Public Edge

The scale of the new intervention must be able to:

- Communicate with the existing scale, Fig.119
- Reflect the new scale for the area
- Act as a land mark
- Communicate to both the public and sacred functions, Fig.120, Fig.121
- Optimise on South light

Roof Section: reflecting scale and function

The roof section reflects the taller, public face on the Southern side and the lower, sacred, private edge on the Northern side.

This roof section also serves to maximise the admittance of South light while limiting the admittance of North light and providing large over hangs and shading devices to further emphasise the scale, Fig.122.

The administration offices are situated on the taller, Southern side. This is both to assert hierarchy and to provide visual communication between those who serve the community and the community themselves, this as opposed to looking on to the sacred space which is a product of this service.

Traditionally church design has emphasised the vertical elements: the connection between ground and sky, man and God. The Multi-Service Centre for Mamelodi East will rather emphasise the horizontal line, scaling the intervention to man.

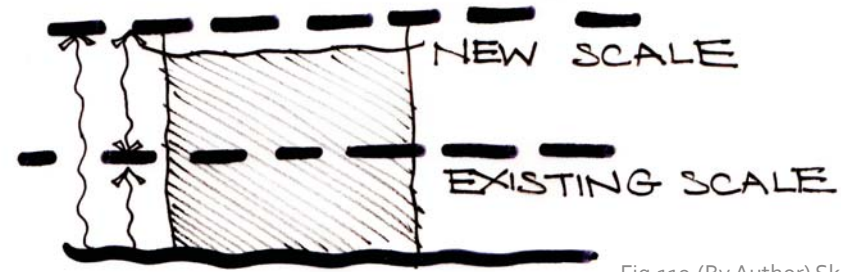


Fig.119.(By Author) Sketch showing form informant

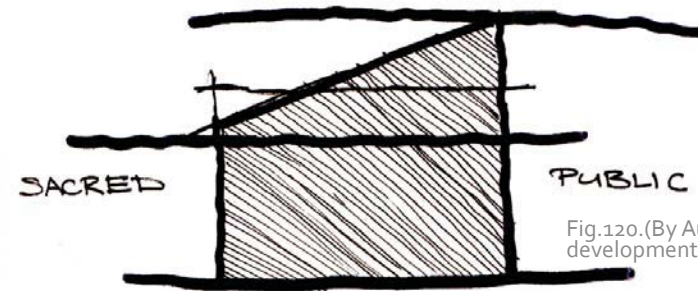


Fig.120.(By Author) Sketch showing development of scale relationship

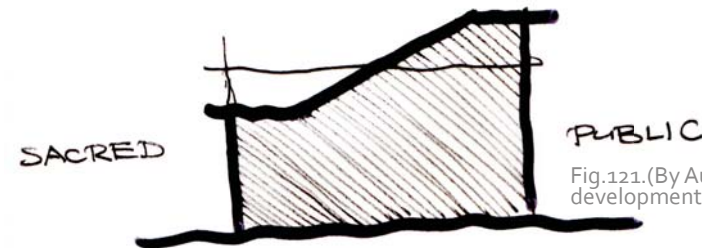


Fig.121.(By Author) Sketch showing development of scale relationship

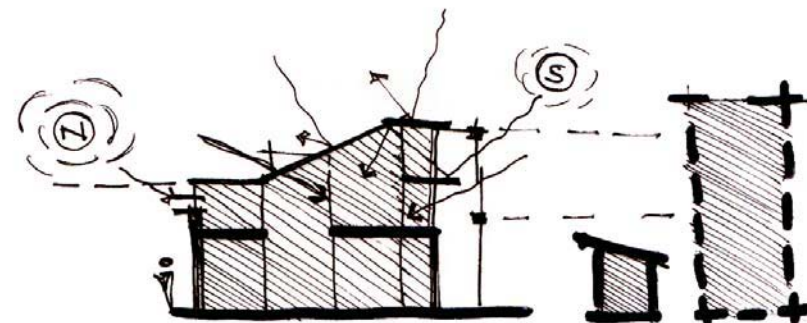


Fig.122.(By Author) Sketch showing scale and orientation

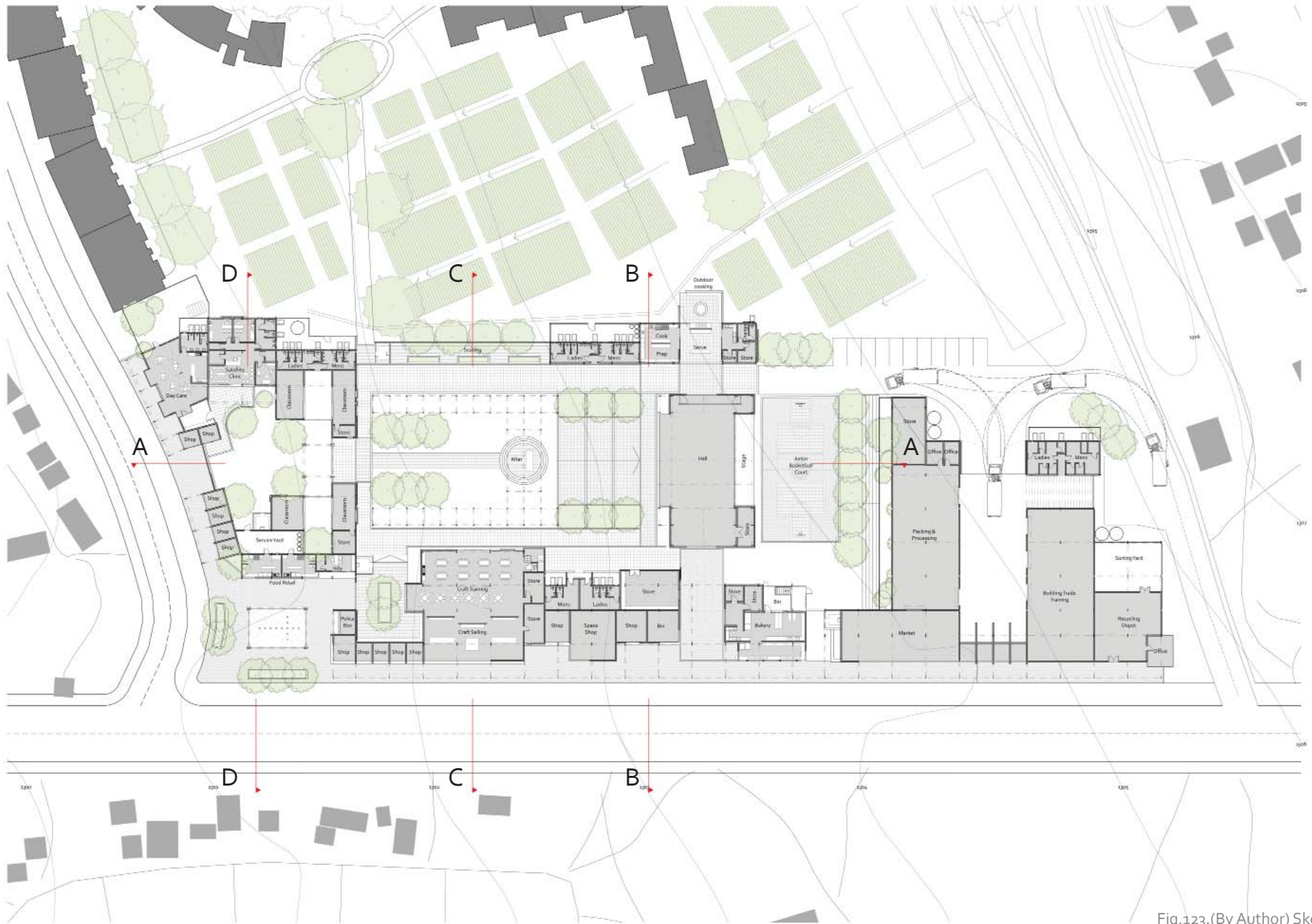


Fig.123.(By Author) Sketch showing scale and orientation



Fig.124.(By Author) Section A-A



Fig.125.(By Author) Section B-B



Fig.126.(By Author) Section D-D

Community Space

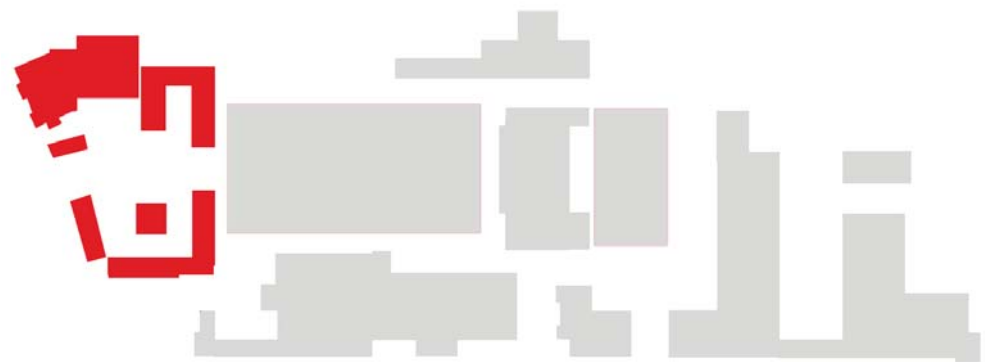


Fig.127.(By Author) Graphic plan indicating community space

Community Courtyard

The scale is low as all the buildings are of a single story. Where there is a double volume, this is set back from the courtyard space. The courtyard has a quiet and peaceful atmosphere, as it is a space for children, a waiting area for the sick and those coming to small class meetings. The trees planted inside the space lower the scale further, bringing the sky to human scale. They will also soften the harsh sunlight, especially during summer.

This space must also serve as a secondary preparation area, before entry to the main sacred Church courtyard to the East.

Shops to Rent

The shops to rent act as a buffer, defining edges and boundaries between public and semi-public spaces, such that the atmosphere in the courtyard is distinctly different from that of the public street.

Day Care

The Day Care is intended to accommodate a class of about 20 children below school-going age. However this could double as an after-care centre for older children in the evenings.

It is equipped with both ablutions for the children and the care giver, and a changing station. The kitchen has a small cooking facility, from which the care giver is able to observe the children whilst remaining distinctly separate. The garden to the North is both a play space and a small food garden, where the children may begin to grow their own vegetables.

Satellite Clinic

The Clinic is part of a greater initiative South of Hans Strydom Drive. It is able to house a nurse and a doctor, or two nurses and a counsellor. It is also equipped with its own ablutions and storage facilities. The courtyard doubles as an extension of the waiting area.

The classrooms are designed to accommodate small meetings such as small Church cell groups, confirmation classes, youth teachings and more. These spaces are also able to be rented out to the community for other functions such as evening classes, adult education, small governmental initiatives etc.



Fig.128.(By Author) 3D view looking towards the Satellite Clinic

Fig.129.(By Author) Opposite Page-Detailed Plan



Commercial Edge

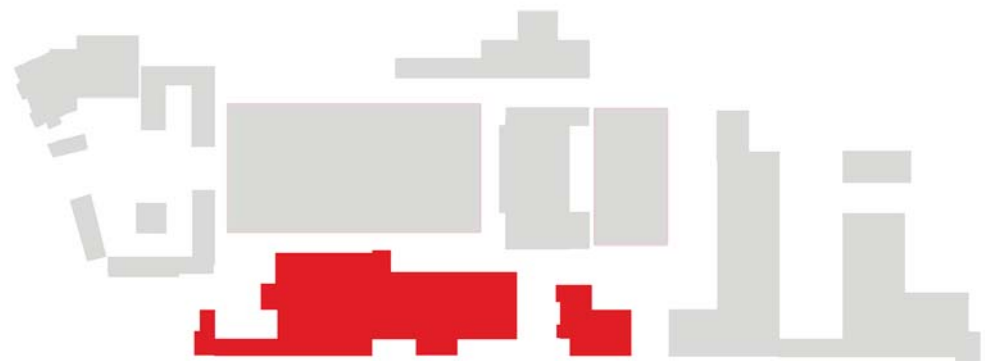


Fig.130.(By Author) Graphic plan indicating commercial edge

The public edge became one of the most important features of the design as it creates an important edge condition and initiates a new scale for the area. This building also houses the most public functions of the intervention.

Ground Floor

Craft Training & Selling

Craft training is housed on the sacred, more private edge as it requires controlled access and a more private environment.

Craft selling is linked to Craft Training although the spaces are clearly defined. The patrons buying the goods can still see and communicate with the people that made the products but access is easily monitored.

Access to the second floor is inside the Craft Training area, as the public and officials are encouraged to interact with the members of their community and functions on site.

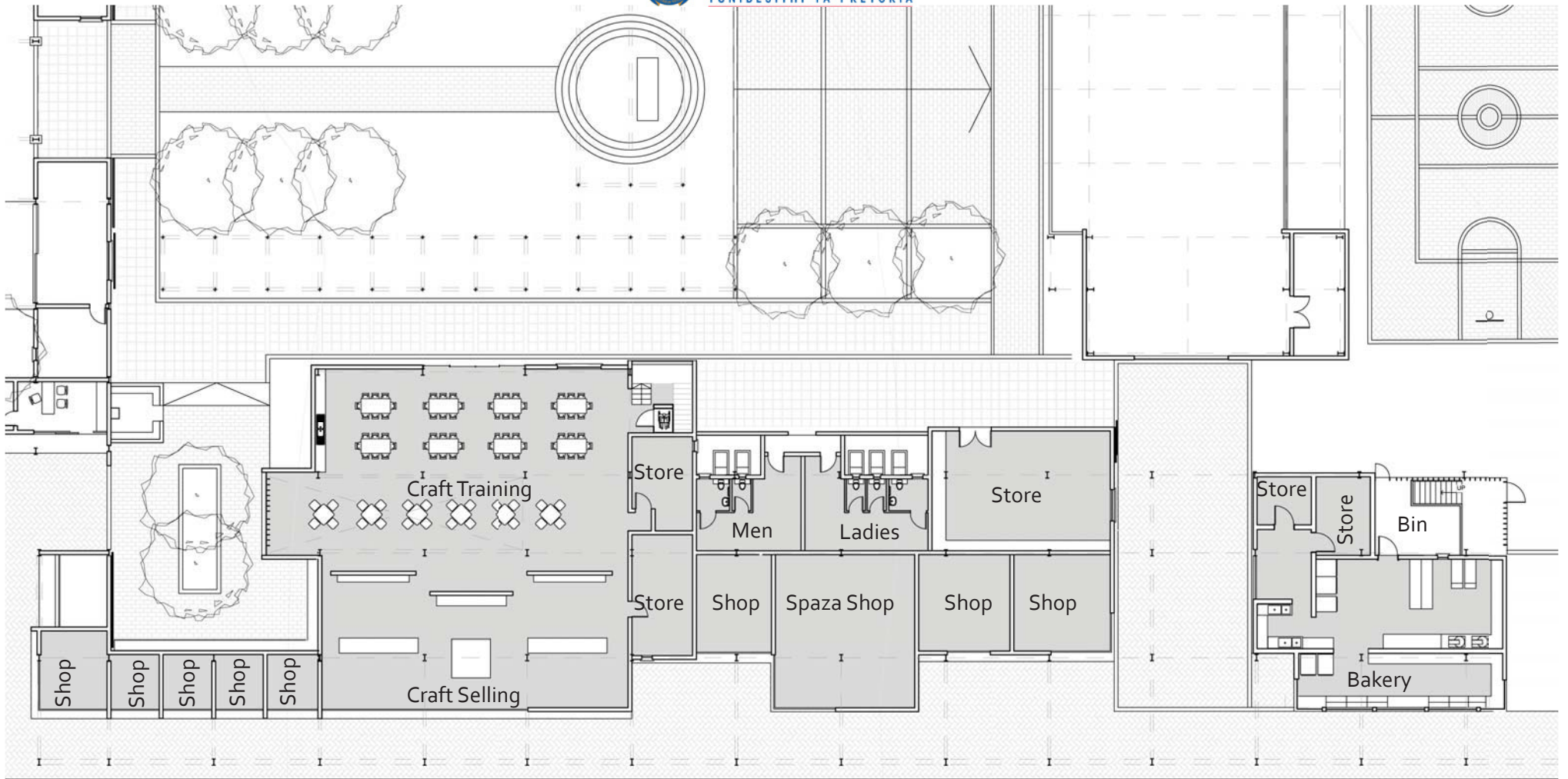
Shops to Rent

Along the public edge there are commercial spaces to rent. These are small shops that have lockable doors that are available to the community. The shop spaces have the advantage over the informal vendor stalls in that their goods are secure and situated in a high traffic area.

Bakery

The bakery is a commercial venture, selling bread and baked goods to the community. It is situated as part of the public edge and is distinctly different from the community kitchen, to the North. The bakery is staffed by trained employees and sells directly to the public.

The bin area for the bakery is tucked under the void between the first floor slab and finish ground level. Delivery access is off Tsamaya Road.



First Floor

Reception

The receptionist is located at the top of the stairs and is able to monitor those coming and going. This space serves as a waiting area for those with appointments or meetings to attend as well as for the Legal Aid office.

Resource Centre

The Resource Centre is both a community library and a computer centre. It is located on first floor level to add a measure of security. The library is located to the South, providing the ideal lighting. The computer centre is located on the North, where the scale is most appropriate.

The double volume that separates the functions also encourages visual communication between functions and different members of the community.

The glazed wall to the West is a feature that orients those entering the complex and admits light into the atrium space. The window has vertical internal timber louvres to shield the inhabitants from the Western sun. It also has a steel cross detail which will cast its shadow into the building.

Meeting Room & Offices

The meeting room and offices for the municipal councillor are located on the Southern side of the building. This is to establish both a hierarchy and a direct visual link between the community and the officials. This is chosen instead of the North facade, where communication would be between the public functions and the sacred space, effectively hiding those that serve the community.

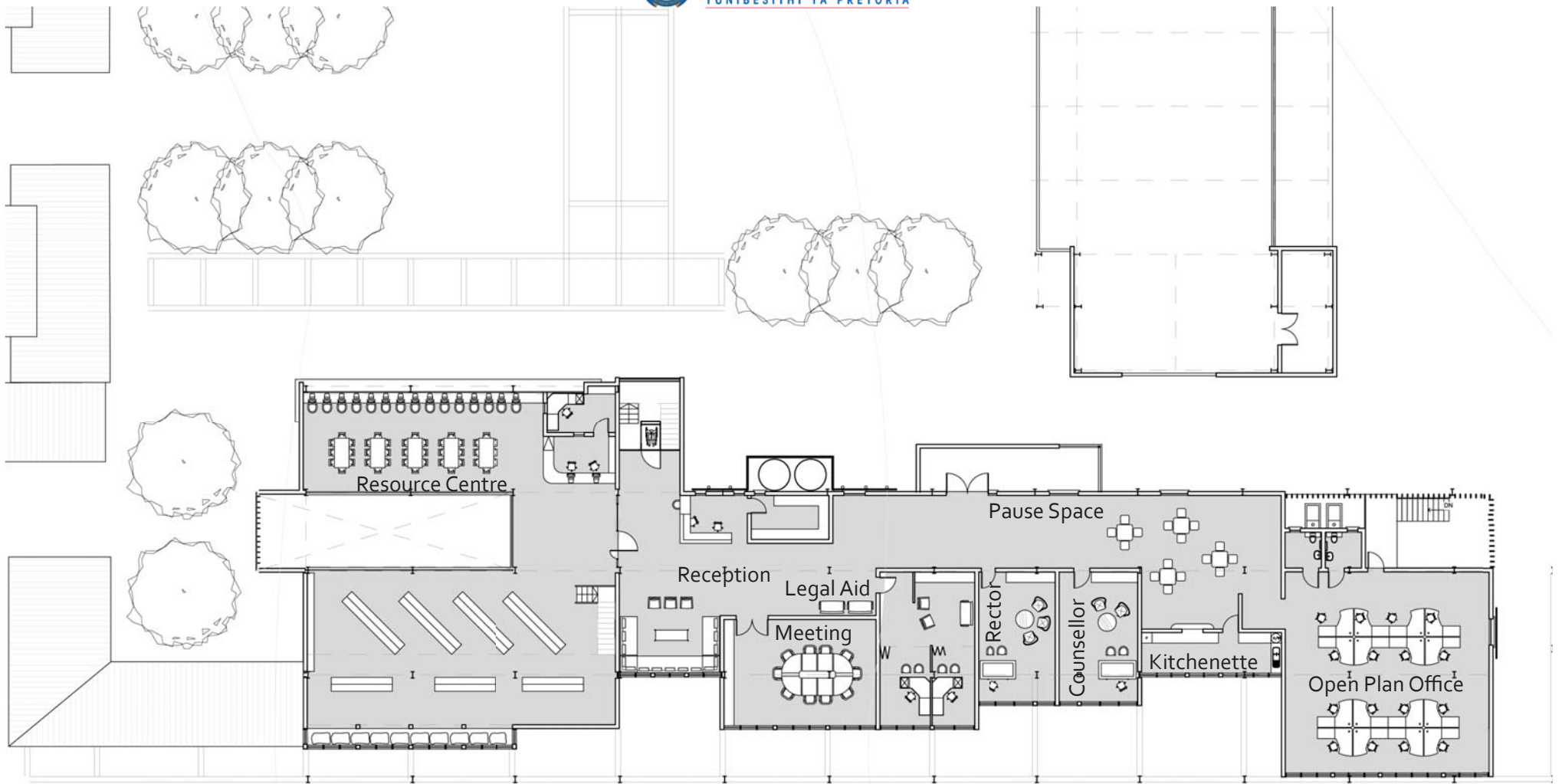
Legal Aid

A small Legal Aid office is available to the community to assist those with legal troubles and advice. This service is also on the Southern edge as it is a public function.



Fig.132.(By Author) 3D view looking towards the Preparation Space

Fig.133.(By Author) Opposite Page-Detailed Plan



Sacred & Recreation Spaces



Fig.134.(By Author) Graphic plan indicating Sacred and Recreation space

Kitchen

The kitchen is divided into 3 parts:

- Preparation area [indoors]
- Storage and ablutions [indoors]
- Serving [under cover courtyard]

Food preparation is undertaken by members of the community and is a social act. The members who cook socialise together and when the food is served greater interaction and fellowship takes place. The kitchen has the possibility to be a spiritual space for members to interact and share with each other.

Every day they continued to meet together in the temple courts. They broke bread in their homes and ate together with glad and sincere hearts
Acts 2:46 [NIV]

The kitchen is on axis with the hall as it forms part of the functioning of this space. The kitchen can be used for secular and religious functions as the hall is able to perform both of these.

The courtyard is open to the North and connects visually with the agricultural fields through the axis created.

The kitchen is serviced via the service road to the East.

Hall

The hall is uniquely positioned that it is able to perform both religious and secular functions.

When there is an independent event happening inside the hall, it becomes a flexible space, whereby each of the four sides are openable. This is able to create the ideal spatial focus for each event.

The Eastern wall retains to ensure the basketball court is level. This level is further raised to create a platform which becomes seating for the spectators or a stage for productions. The stage can either be focused internally or externally, depending on the event or the weather.

The hall must become an architectural feature in that it is multi-functional. It is also positioned at the termination and eventual focus of the East-West axis.

This axis is formed by the positioning of the building layouts to form a complex, sheltering and forming spaces between them. The sacred space is defined by twelve cruciform columns that form a pergola that focuses the line of sight toward the altar space and the hall beyond.

These twelve sets of columns on each side are symbolic of the twelve apostles and of the twelve stations of the cross that lead to the altar, and new life:

1. Jesus is Condemned to Die
2. Jesus is Made to Bear His Cross
3. Jesus Falls the First Time
4. Jesus Meets His Mother
5. Simon Helps Jesus Carry His Cross
6. Veronica Wipes Jesus' Face
7. Jesus Falls the Second Time
8. Jesus Meets the Women of Jerusalem
9. Jesus Falls the Third Time
10. Jesus is Stripped
11. Jesus is Nailed to the Cross
12. Jesus Dies on the Cross

Fish Eaters. Accessed 10 October 2010

Basketball Court

The basketball court is undersized to prevent competitive games. This is a space for recreational activities, a level courtyard for social interaction or an informal auditorium for community events.

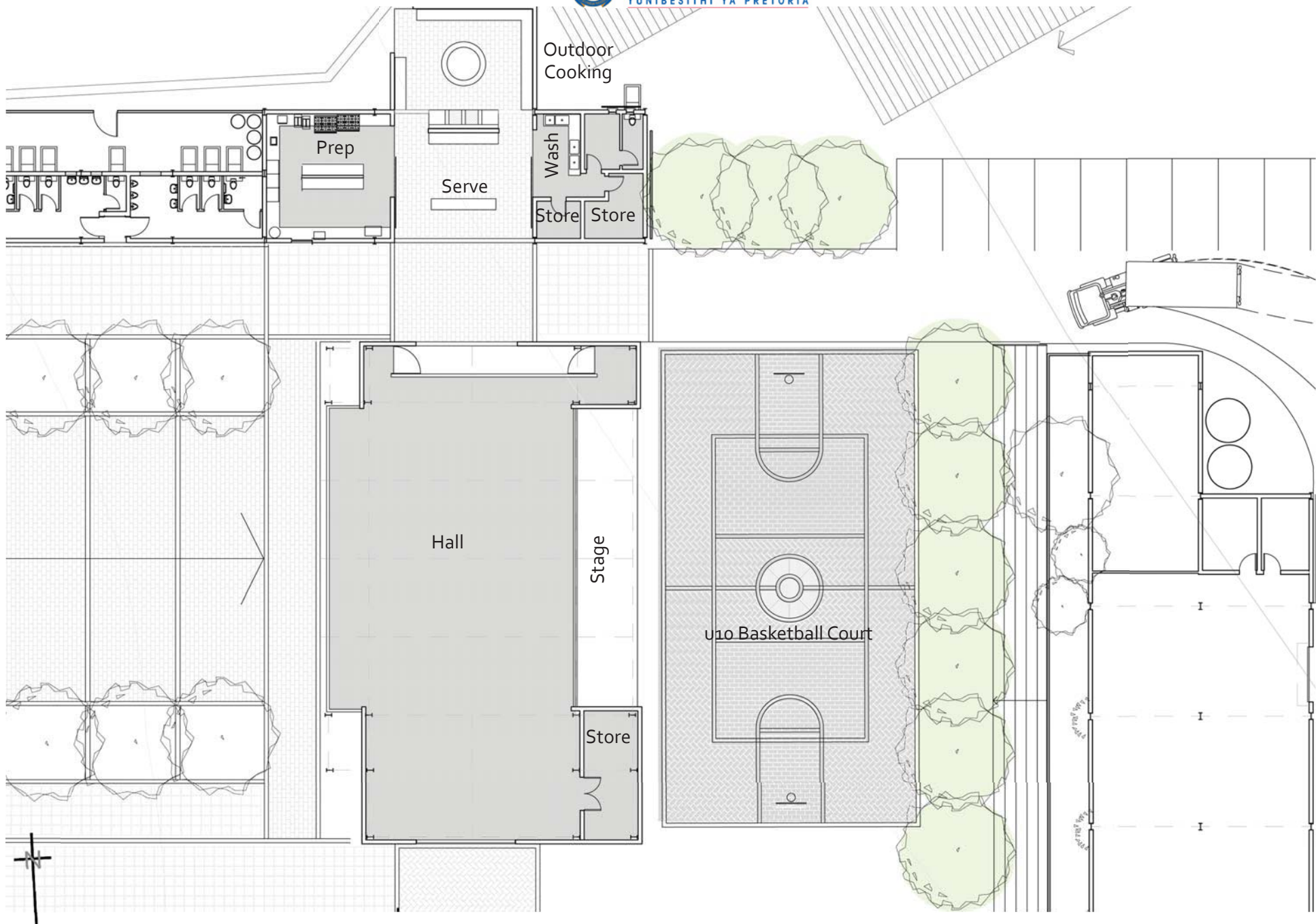
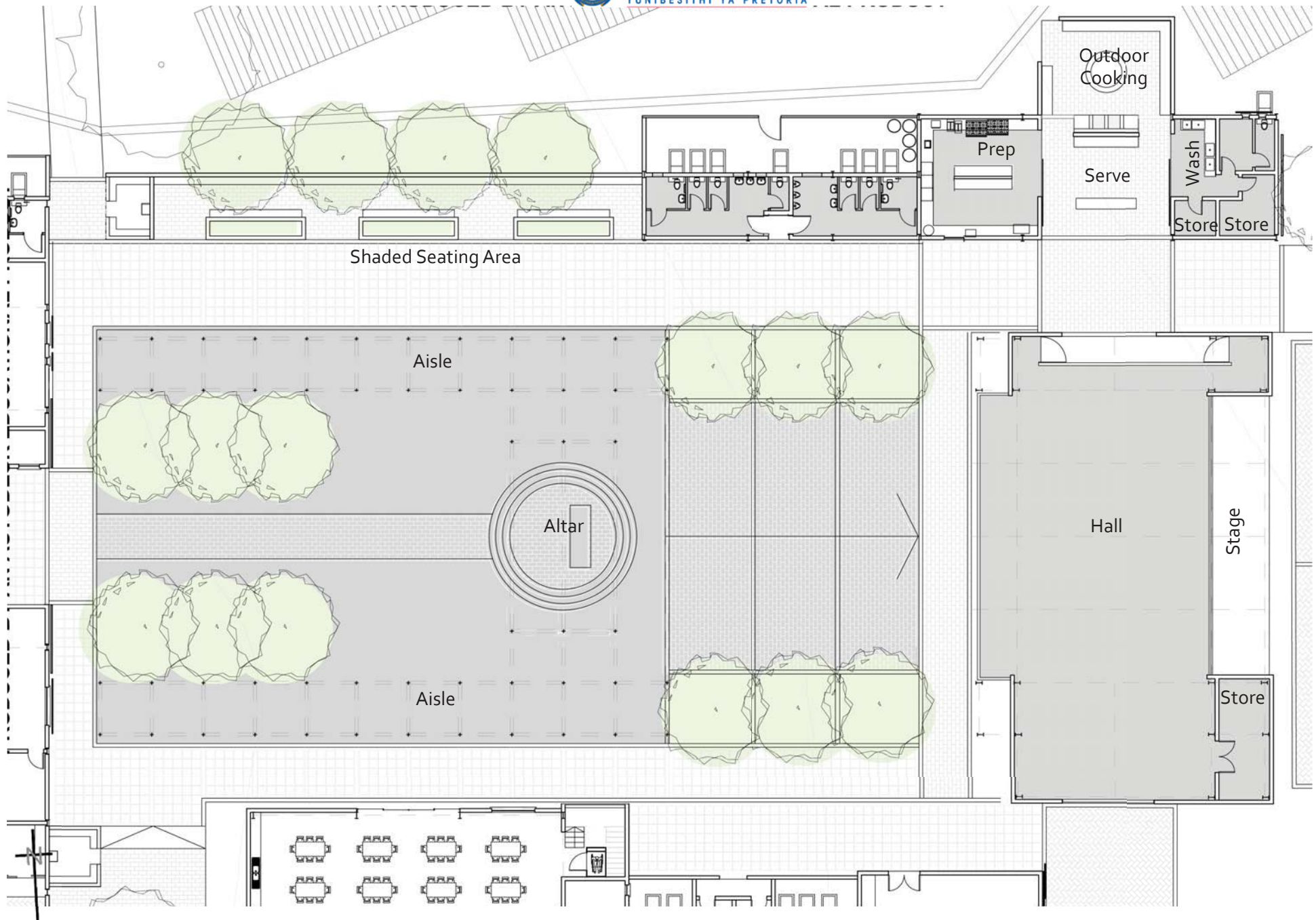




Fig.136.(By Author) View of sacred Space looking East

Fig.137.(By Author) Opposite Page-Detailed Plan



Scenario 1: Small to Medium Church Service

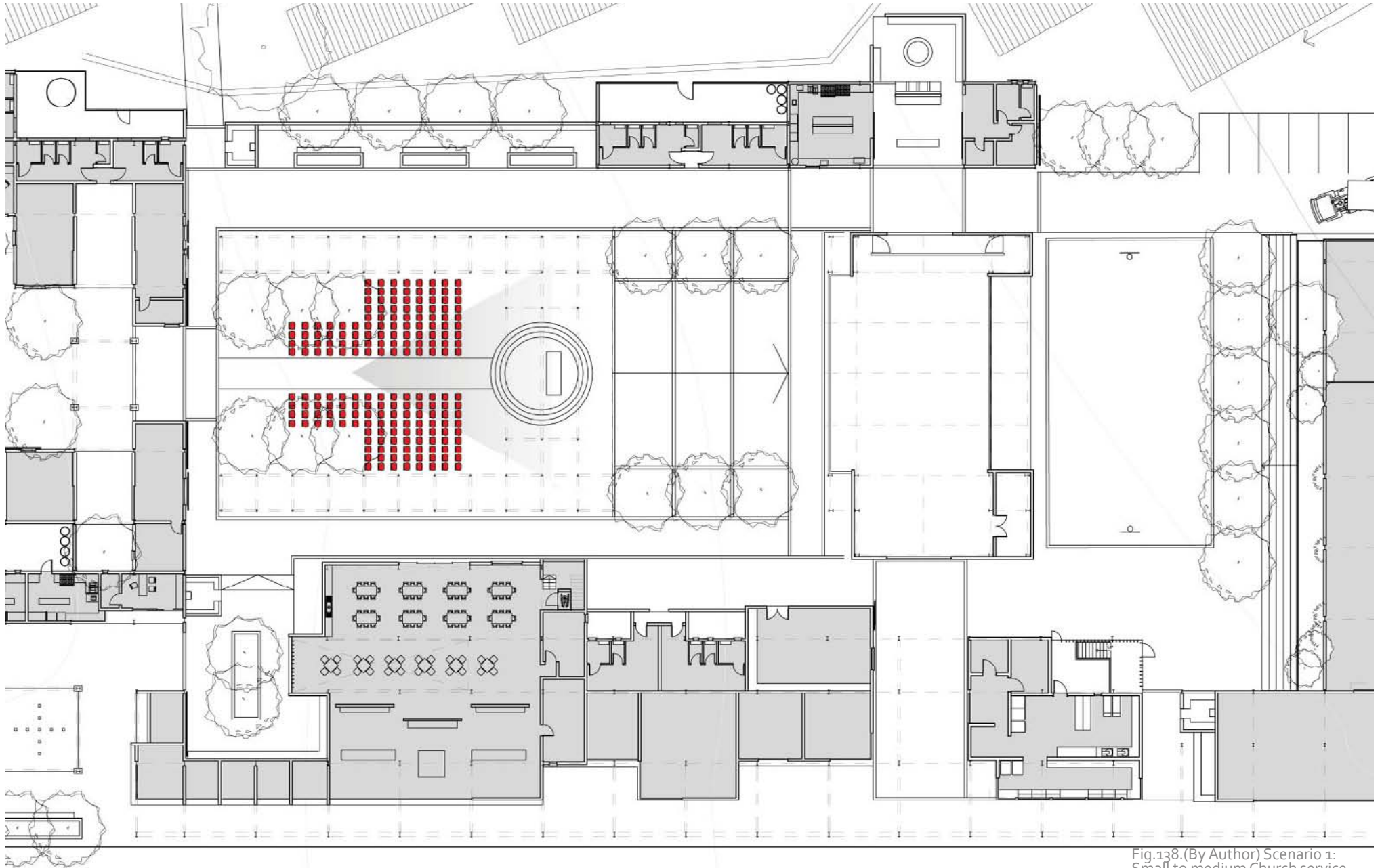


Fig.138.(By Author) Scenario 1:
Small to medium Church service

Scenario 2: Medium to Large Church Service

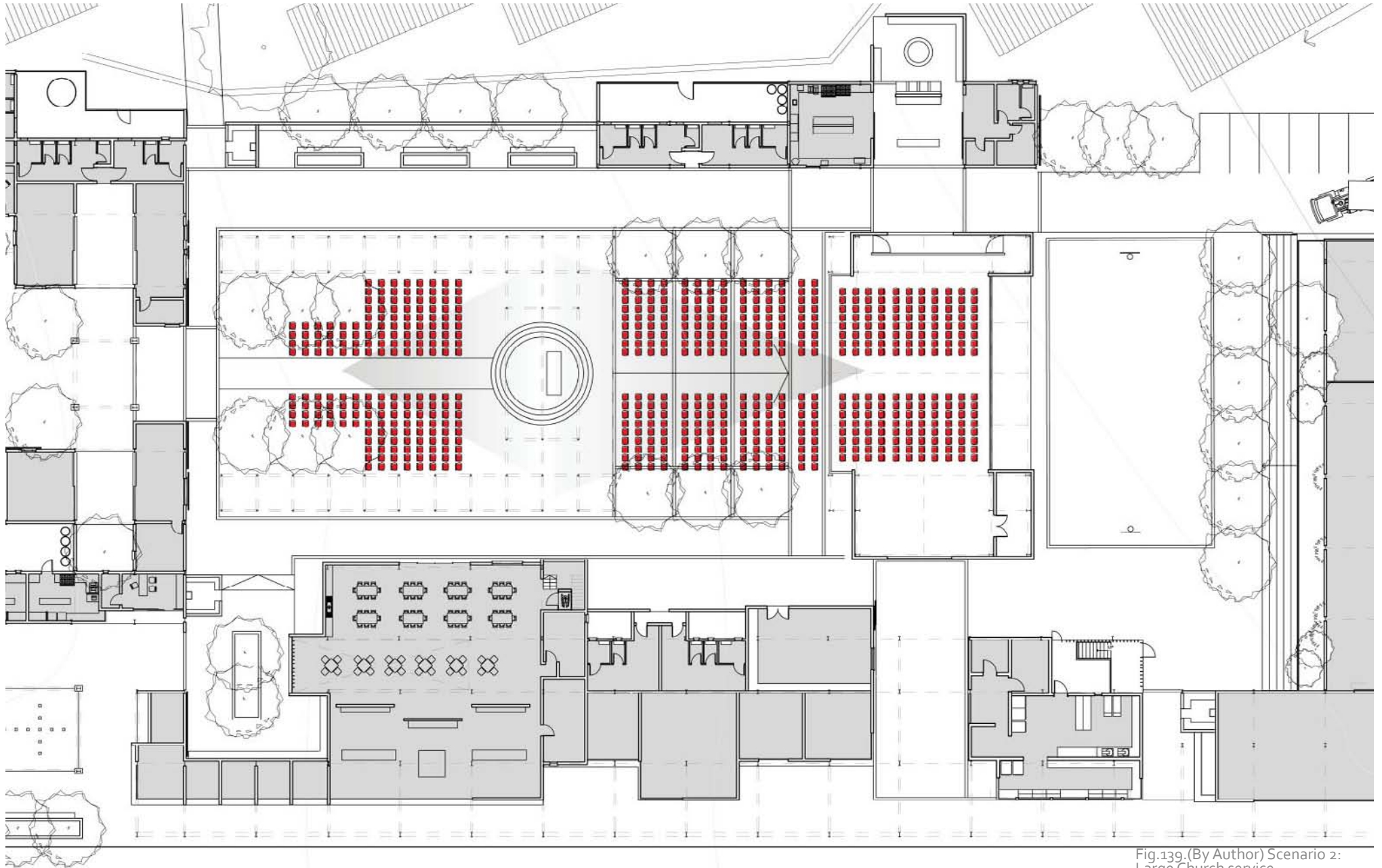


Fig.139.(By Author) Scenario 2:
Large Church service

Scenario 3: Medium to Large Public Function

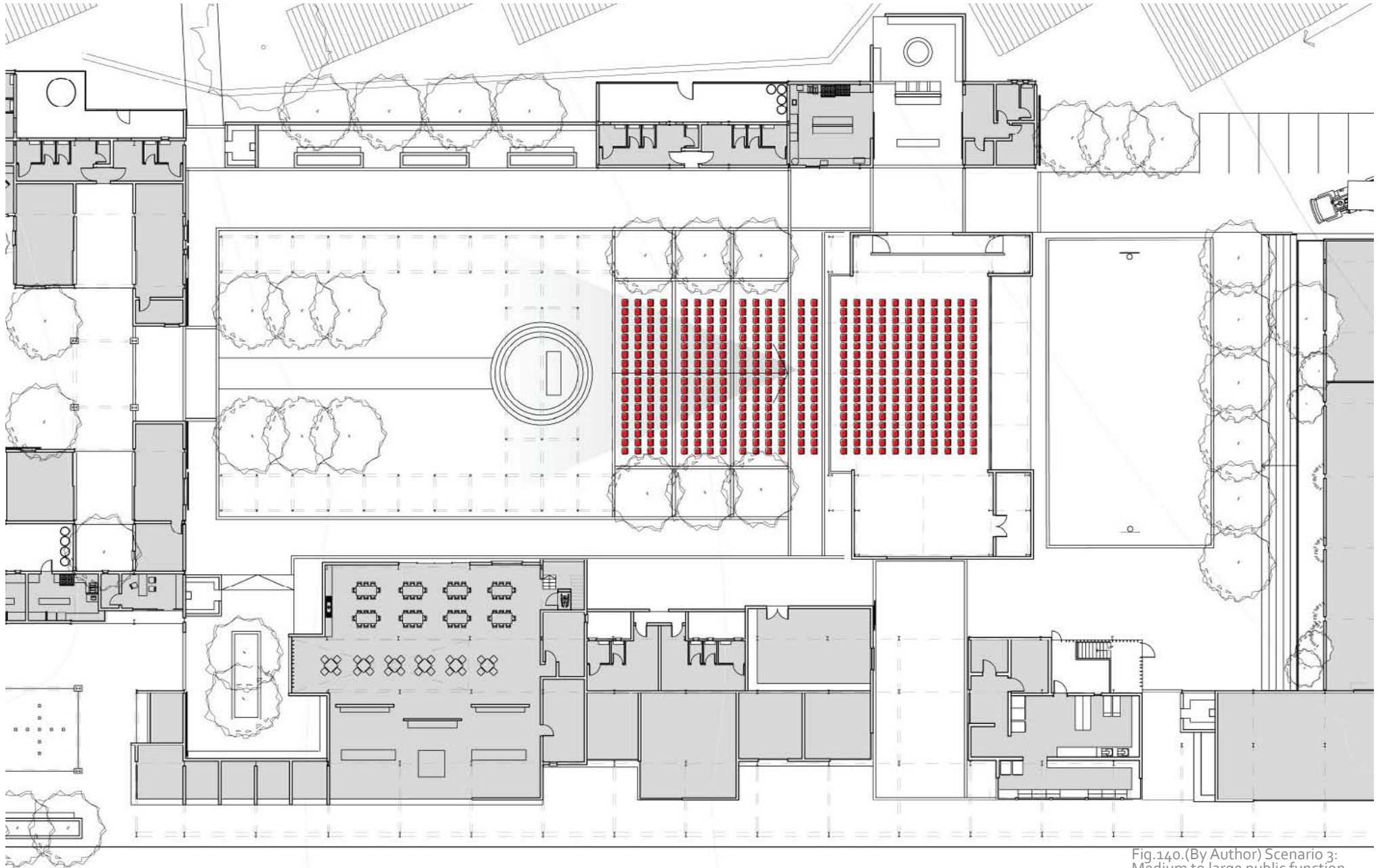


Fig.140.(By Author) Scenario 3:
Medium to large public function

Scenario 4: Indoor Performance

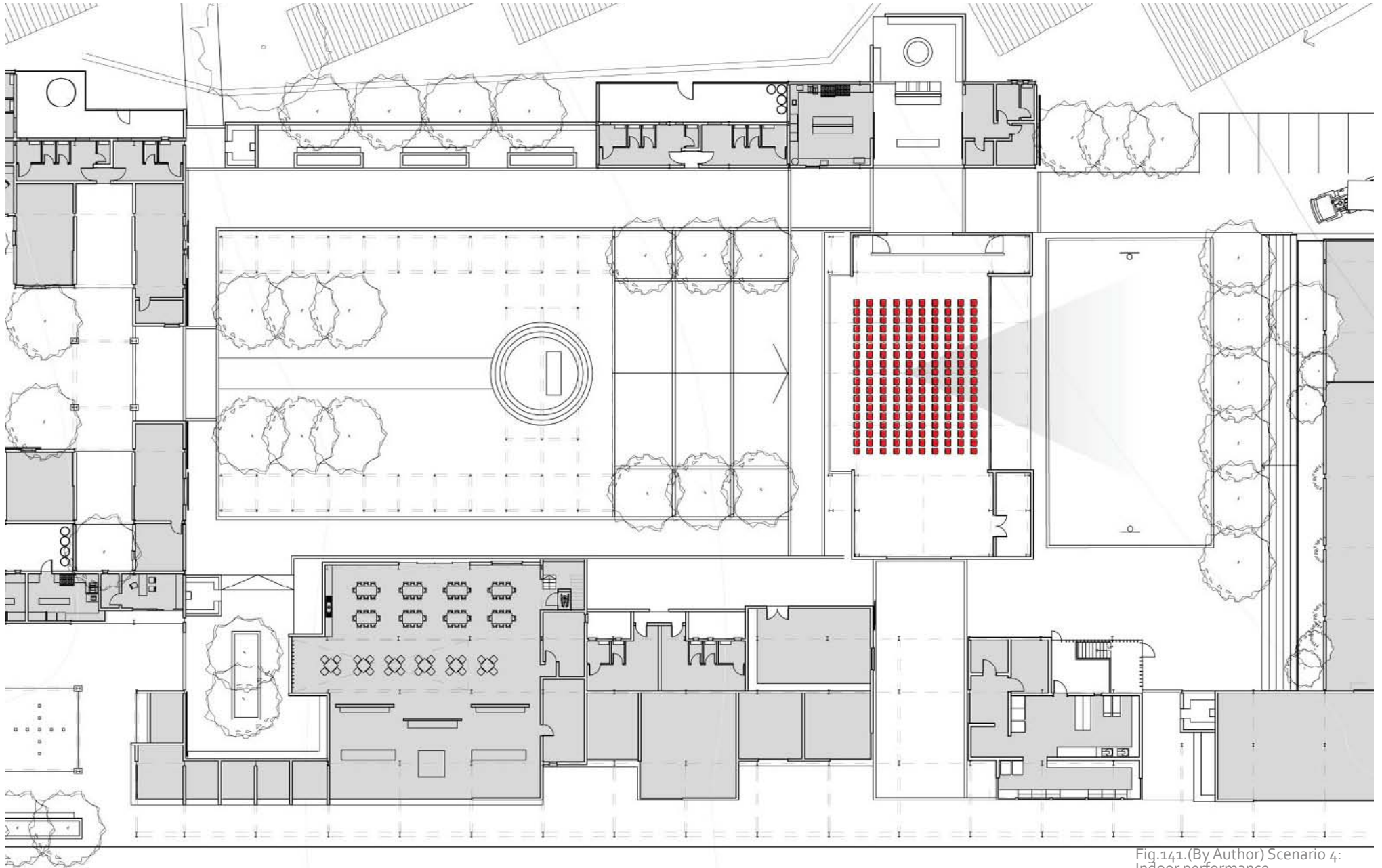


Fig.141.(By Author) Scenario 4:
Indoor performance

Scenario 5: Outdoor Performance

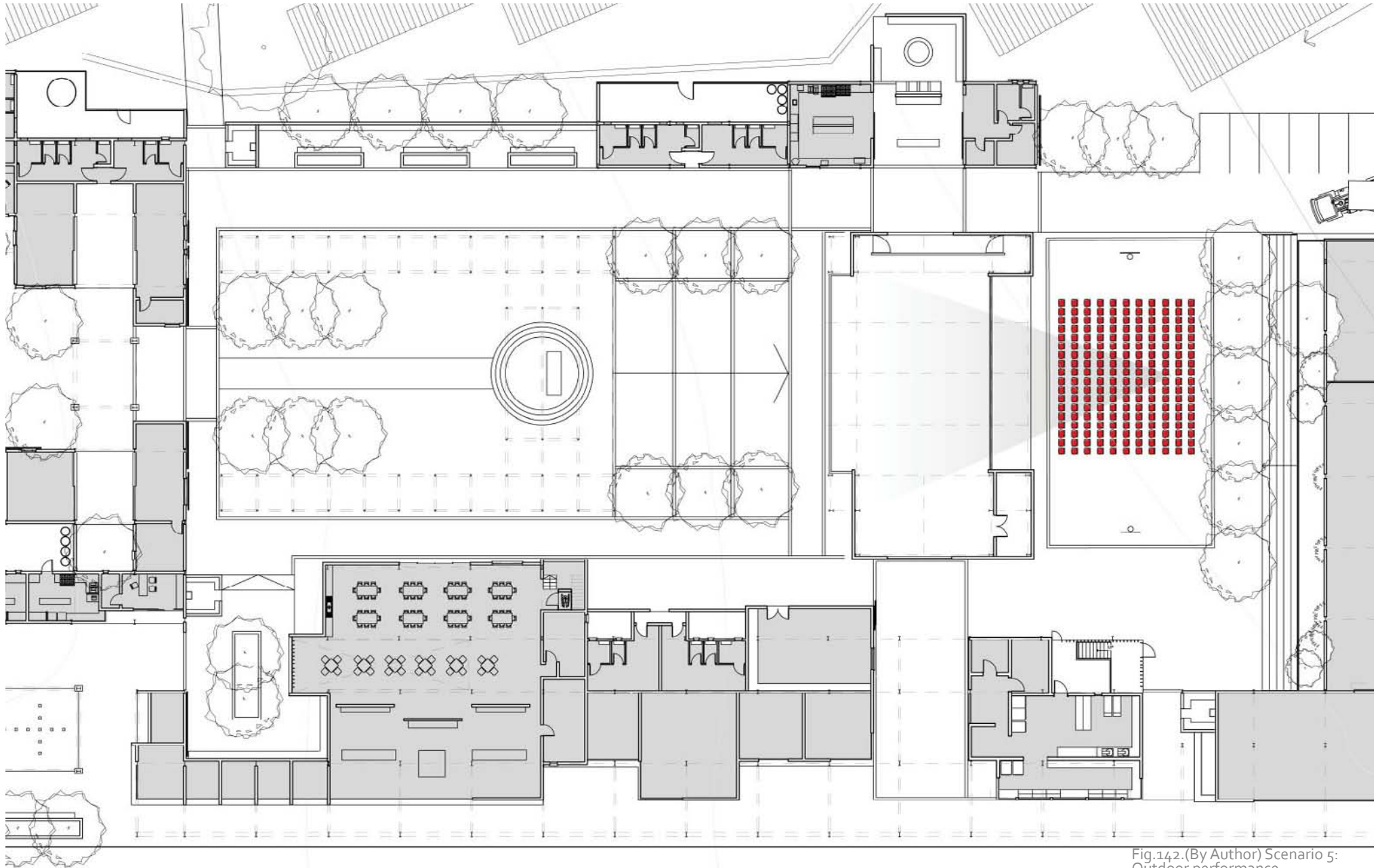


Fig.142.(By Author) Scenario 5:
Outdoor performance

Scenario 6: Indoor Speaker

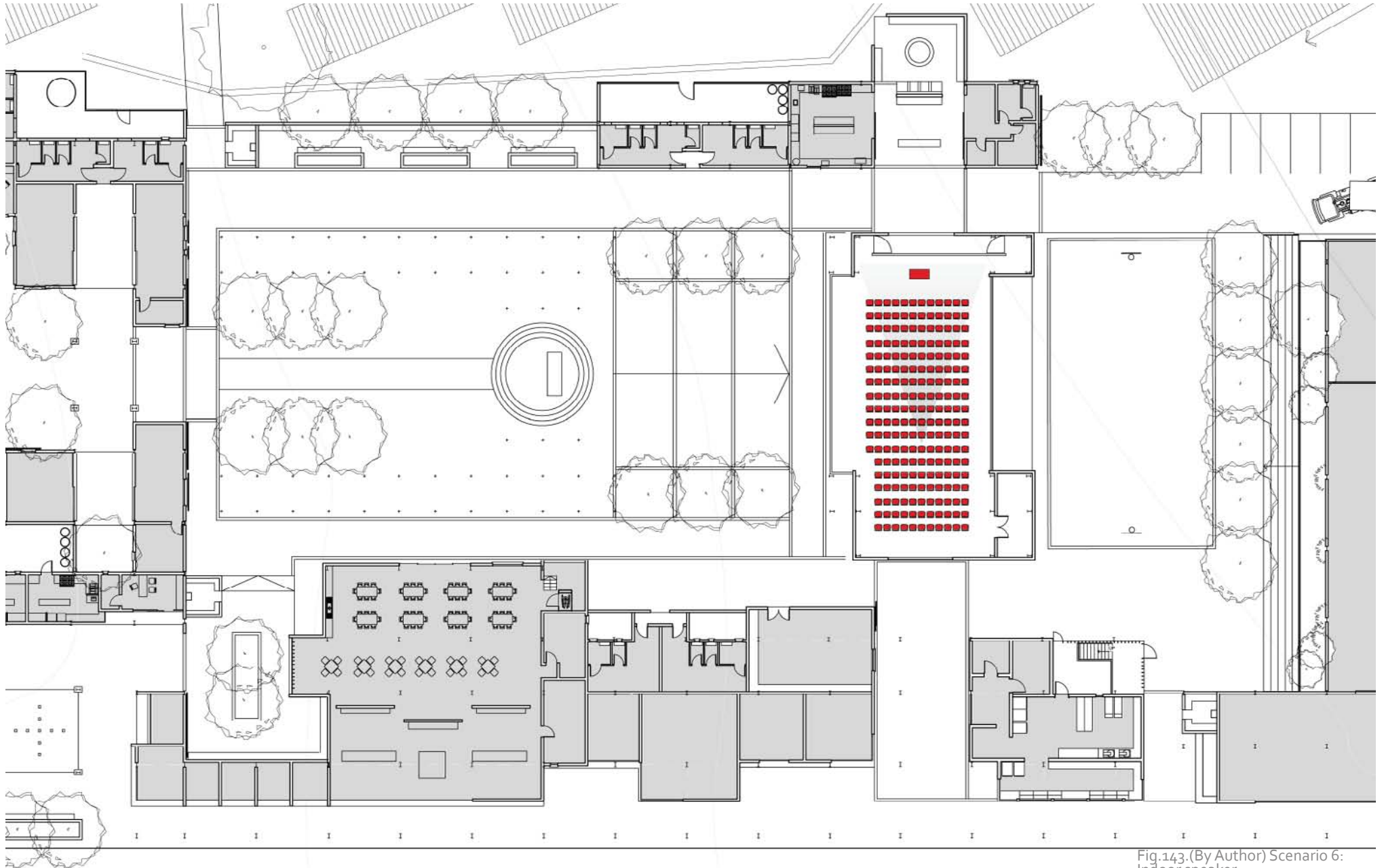


Fig.143.(By Author) Scenario 6:
Indoor speaker

Scenario 7: Social Event

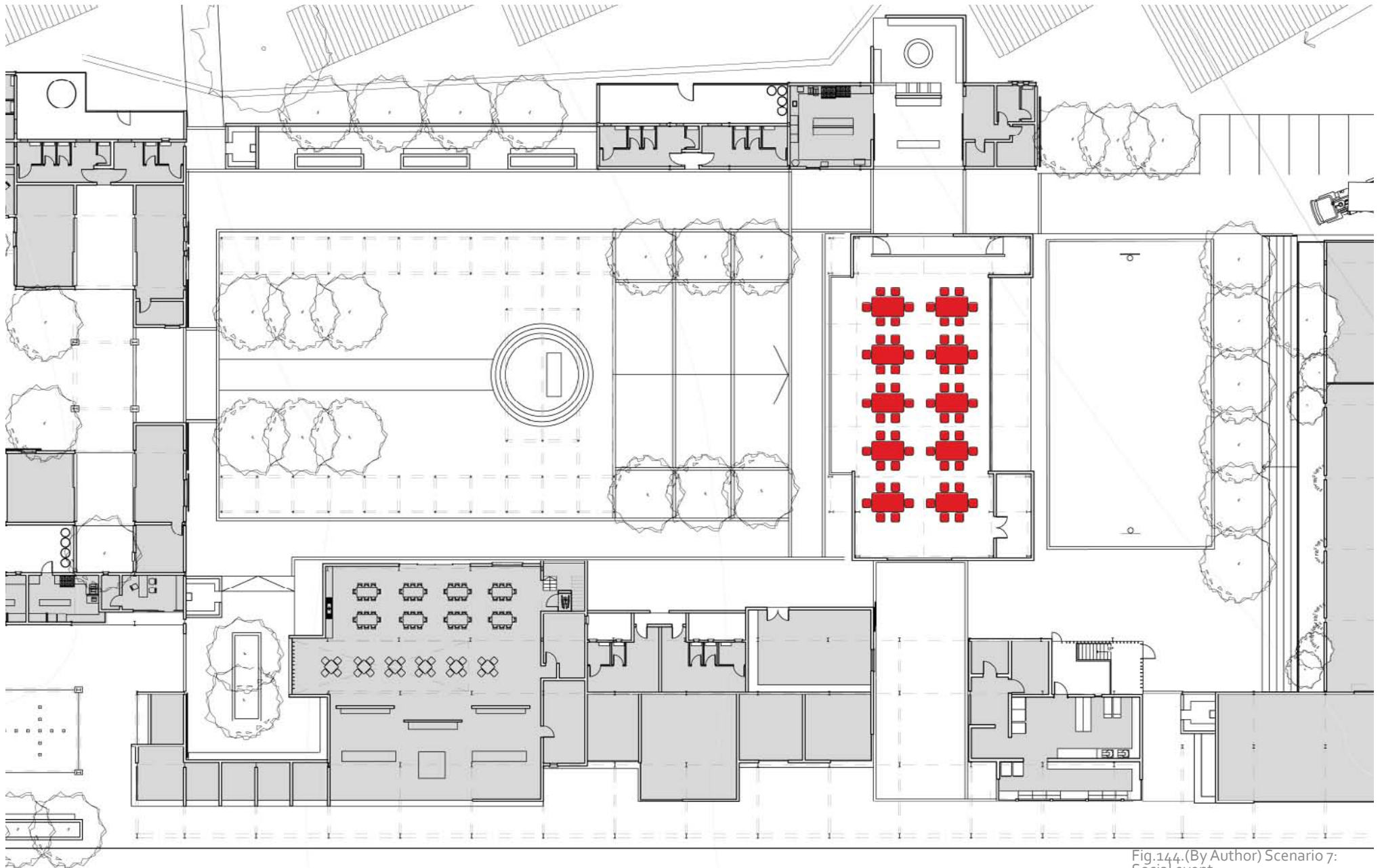


Fig.144.(By Author) Scenario 7:
Social event

Scenario 8: Social Sports Event

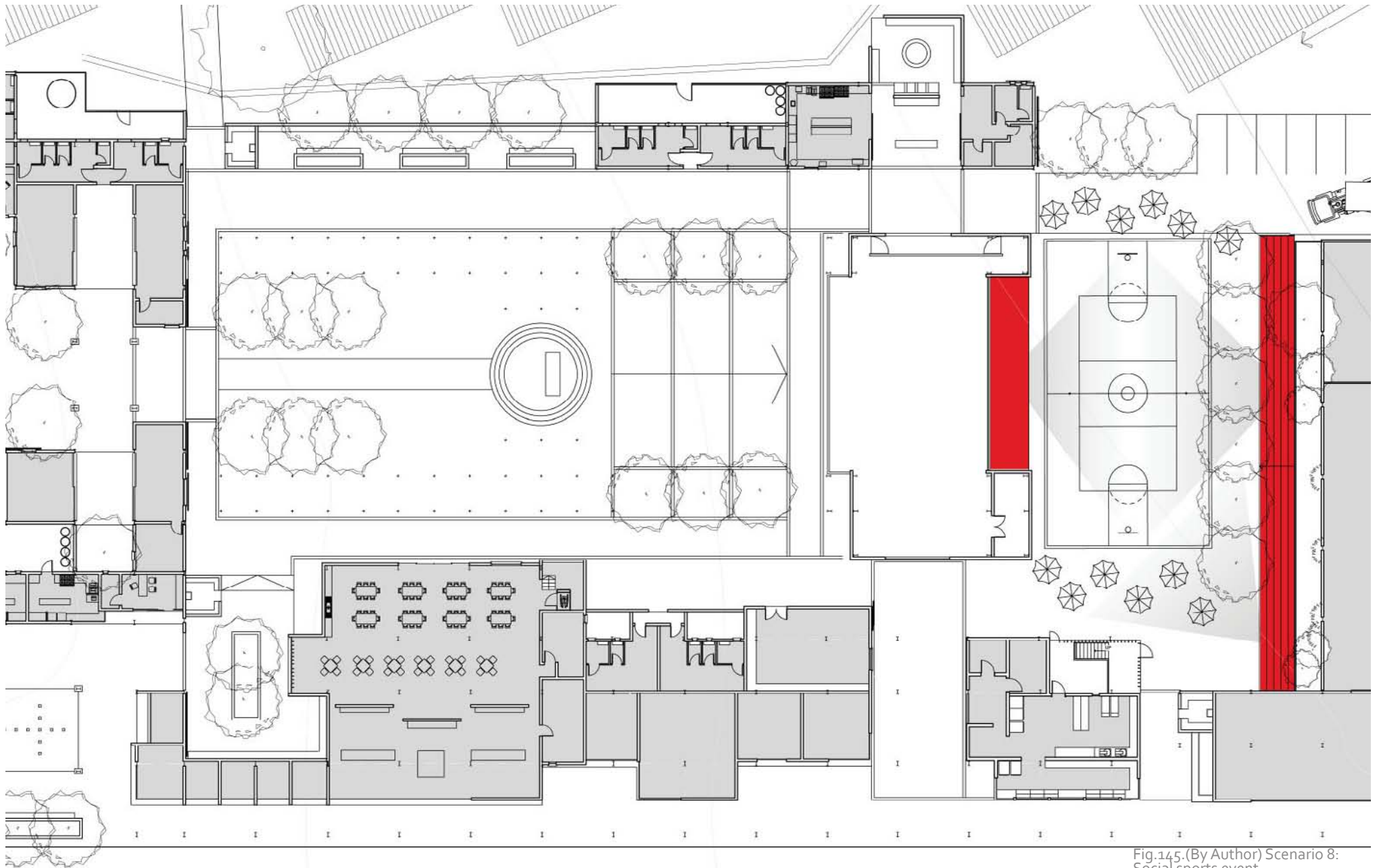


Fig.145. (By Author) Scenario 8:
Social sports event

Detail: Hall Doors

Light and shade are an important design element. They become a fourth dimension with which to design and texture spaces and facades.

The Hall must also form the termination point of the axis that runs East-West within the Sacred Space. The nature and function of the hall requires flexibility and a lightness, which is also contrasted by the necessity for solidity, an anchoring element that is heavy and communicates with the ground.

The lightness of the doors, which enable the space to transform, accommodating many functions is thus grounded by the heavy walls. These doors are constructed from a steel frame, with a steel, red cross detail inserted into the frame Fig.148. This detail is also to give additional support to the frame. Timber louvres are inserted inbetween the steel structure and draw from the simplicity of the horizontal shadow lines and elements that frame the sacred space. The three openable doors with their cross details are symbolic both of the Holy Trinity and of Jesus and the two men who were crucified at the same time.

The louvres will cast shadows either into the hall space when the doors are closed, Fig.146, or onto the ground, shading those below when open, Fig.147.

This dynamic play of light and shadow that changes with the time of day, weather and functional use, both adds to the quality and makes the user more aware of the space.

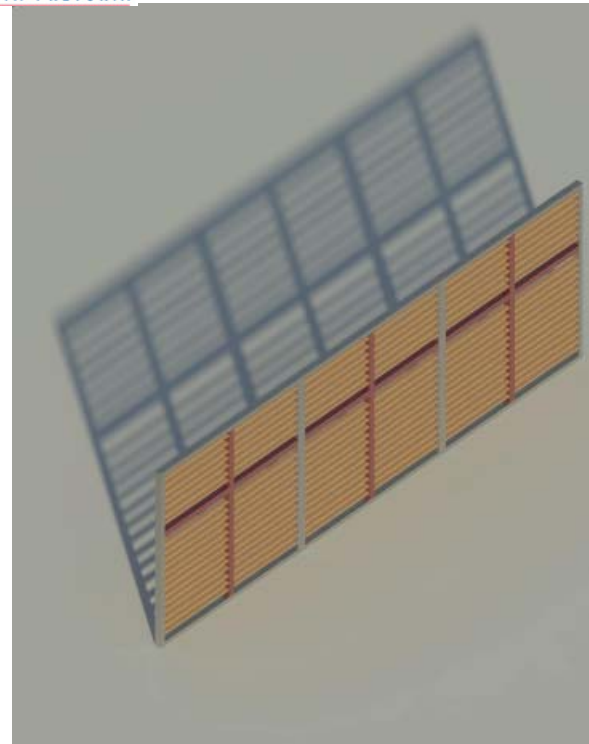


Fig.146.(By Author) Concept illustration showing doors closed

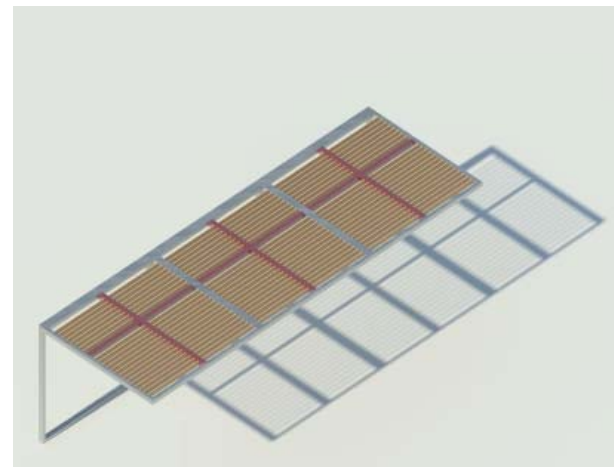


Fig.147.(By Author) Concept illustration showing doors open

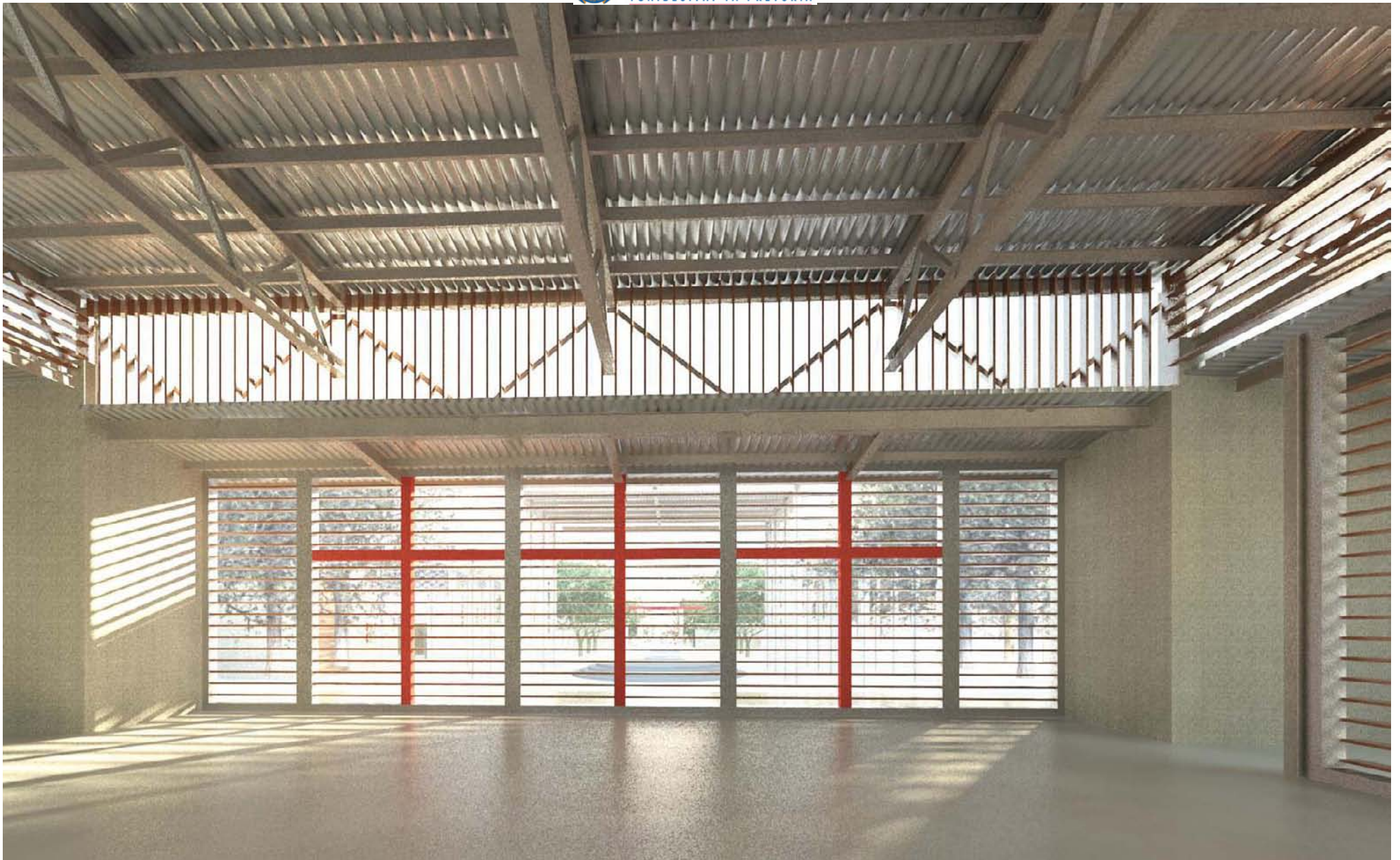


Fig.148.(By Author) Illustrative view inside the hall, looking West

Production & Training

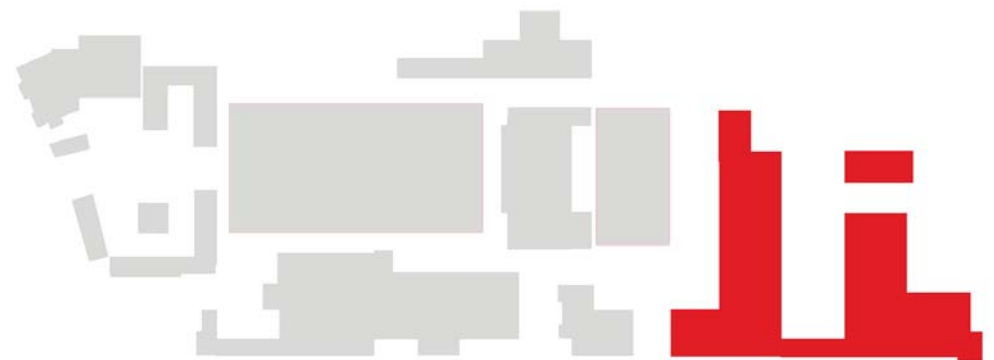


Fig.149.(By Author) Graphic plan indicating Production & Training

The Production area of the intervention is largely remaining as a general proposal, although the general function and spaces have been designed., the specifics remain too large to tackle within the scope of this thesis, Fig.150.

The existing primary function on site is a governmental agriculture and floraculture initiative. This project has not been maintained, although it still functions, it has fallen into disrepair.

Packing & Processing

The Packing and Processing area will allow the goods being produced on site to be packaged and sold in the attached market space, directly benefiting the community, as well as for a portion to be sold to local retailers.

Market Space

The open market hall is a space for the community to gather to sell their goods and a forum for community exchange. Quite a number of the local people already have a small plot of vegetables growing in their gardens, this market, along with the expanded agricultural intervention will increase education and local food productivity. This in turn will produce income for both the community and the intervention.

Building Trade Training

This is a small trade school geared to teaching trade skills to the local community. These skills will be put back into the intervention in its construction and maintenance, as well as into the larger site development, through the building of social housing units.

Recycling Depot

The community is able to bring their goods for recycling to the depot, increasing awareness about the importance of recycling. Here the goods will be sorted and taken to a recycling centre. In return the community may be able to get financial compensation for goods handed in.



Sacred Space: Water

Water is highly symbolic in the Christian faith and at each entrance, Fig.152 there should be either a water point where one is able to drink, prepare and cleanse or a water feature, Fig.151.

If anyone is thirsty let him come to me and drink. Whoever believes in me, as scriptures have said, streams of living water will flow from within him.
John 7:37-38

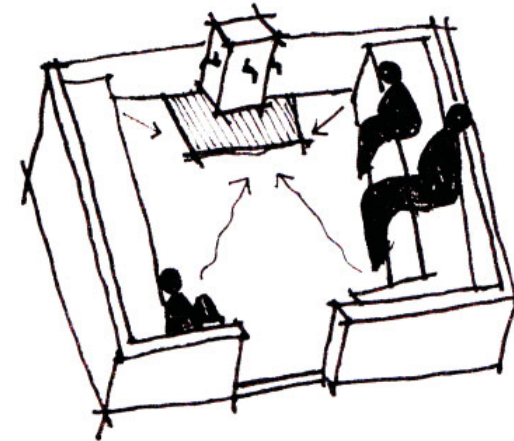
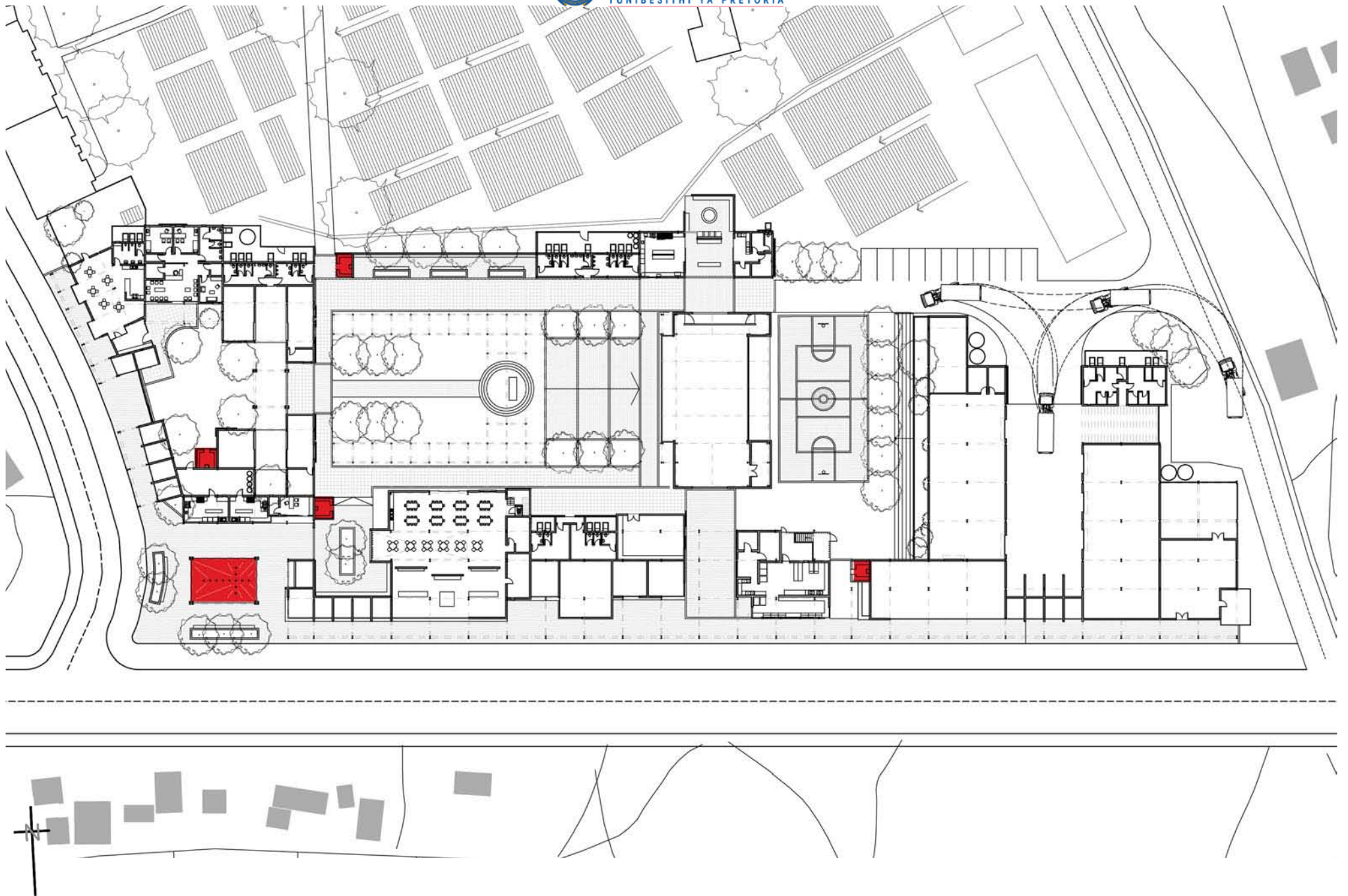


Fig.151.(By Author) Sketch showing water point

Fig.152.(By Author) Opposite Page-Plan showing location of water points



Scale: South Elevation

The elevations of the public facades have a unifying element which ties the different functions and buildings together into one cohesive intervention, Fig.154.

This element must also reflect the two scales of the area, new and existing. Which will also serve to provide a pedestrian-friendly scale.

This unifying element is a projecting structural frame where the two horizontal members are emphasised through colour.

The structural frame representing God, within which the building is able to take shape and define space. Red is chosen to highlight the horizontal elements as it is a strongly symbolic colour in the Christian Church:

But if we walk in the light, as He is in the light, we have fellowship with one another, and the blood of Jesus, His Son, purifies us from all sin.

1 John 1:7 [NIV translation]

In fact, the law requires that nearly everything be cleansed with blood, and without the shedding of blood there is no forgiveness.

Hebrews 9:22 [NIV translation]

Therefore, brothers, since we have confidence to enter the Most Holy Place by the blood of Jesus, by a new and living way opened for us through the curtain, that is, His body

Hebrews 10:19-22

To Him who loves us and has freed us from our sins by His blood, and has made us to be a kingdom and priests to serve His God and Father—to Him be glory and power for ever and ever! Amen.

Revelations 1:6 [NIV translation]



Fig.153.(By Author) Process sketch of South Elevation

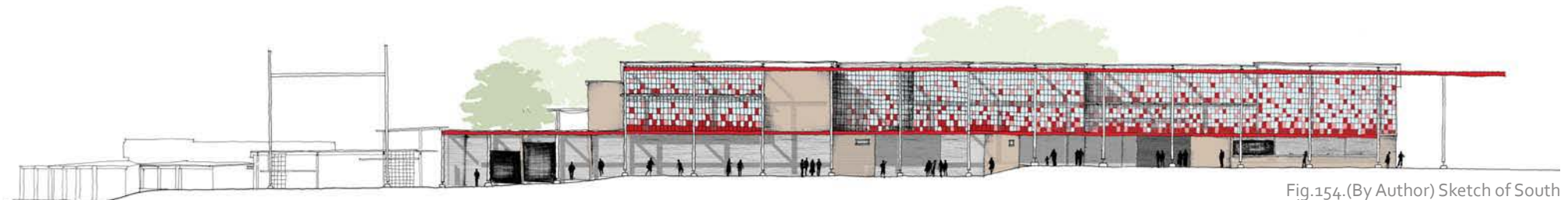


Fig.154.(By Author) Sketch of South Elevation

Scale: North Elevation

The North elevation borders the sacred space and thus will reflect differently to the public facade.

This facade is of a much lower scale, speaking to the intimacy and relative privacy of the space.

Warmth and interest is added through timber sun screening which further emphasises horizontality. Concrete lintels are plastered and expressed as horizontal bands

The focus within the space is emphasised by the use of these horizontal elements which reinforce the East-West axis created by both building layout and landscaping, Fig.157.

Large overhangs contribute to the play of sunlight provided by the various elements, producing bands of shadow that are projected onto the wall face.

The scale and language of the architecture on this face, reflects inward, as compared to the Southern facades which seeks to directly communicate outward.

The edges created by the structures that border the sacred space seek to frame space, rather than compete for attention.

The language is simple, speaking of horizontals and verticals and using simple palette of textures.

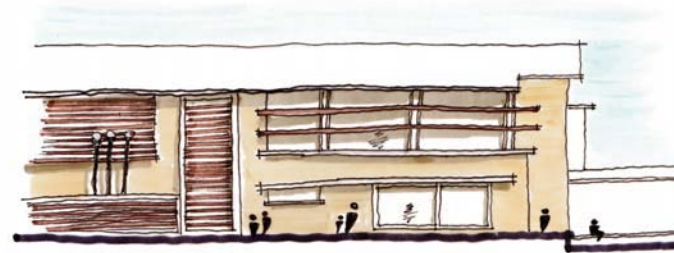


Fig.155.(By Author) Process sketch of North Elevation

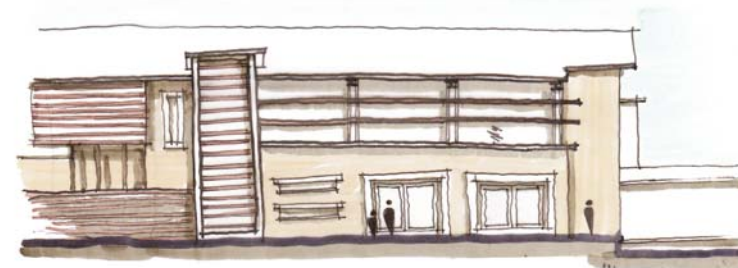


Fig.156.(By Author) Process sketch of North Elevation

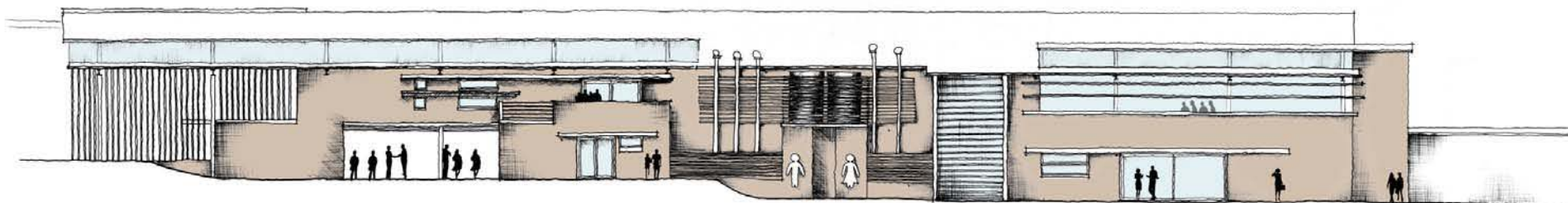


Fig.157.(By Author) Sketch of North Elevation



Fig.158.(By Author) Images showing 3D development



Fig.159.(By Author) 3D render -
October 2010

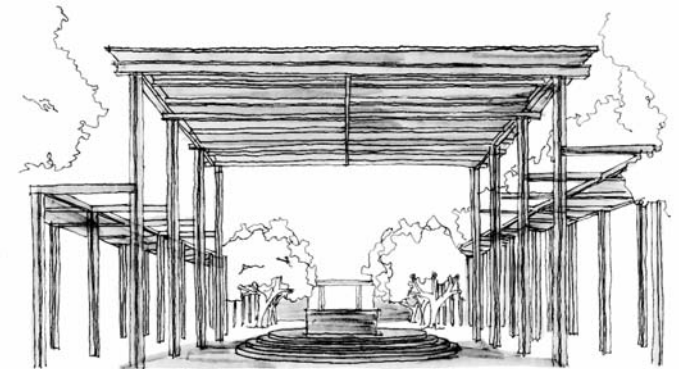
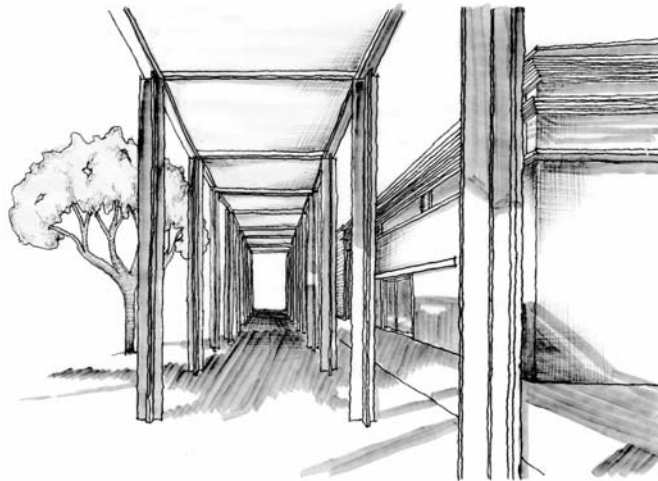
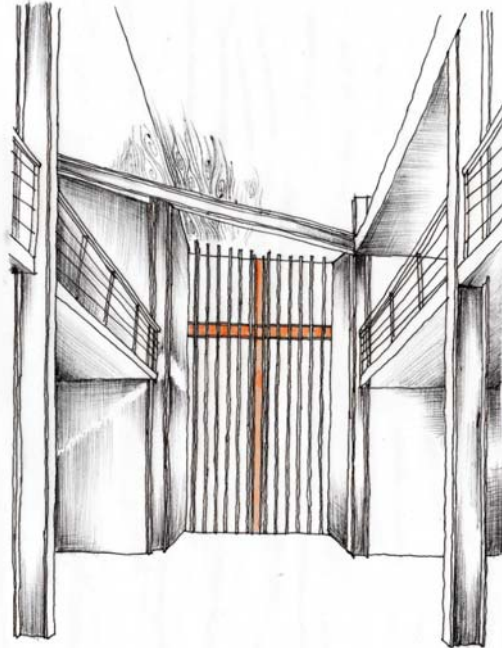
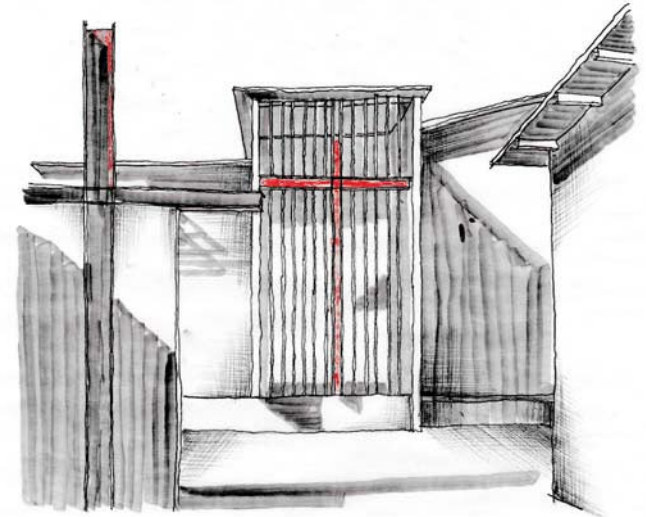
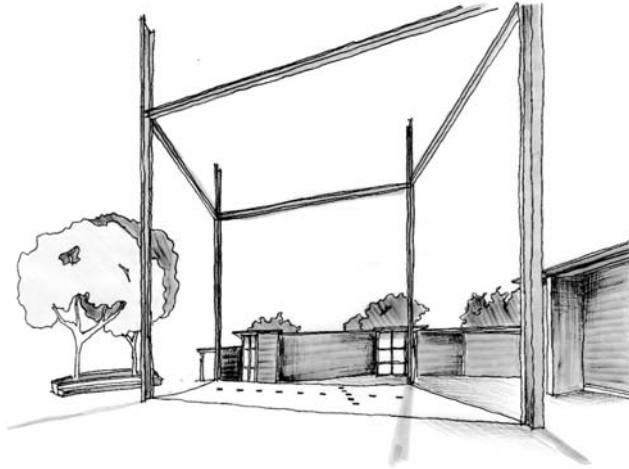
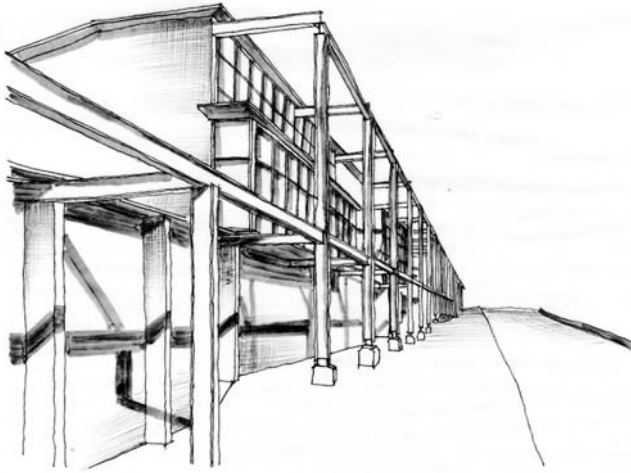
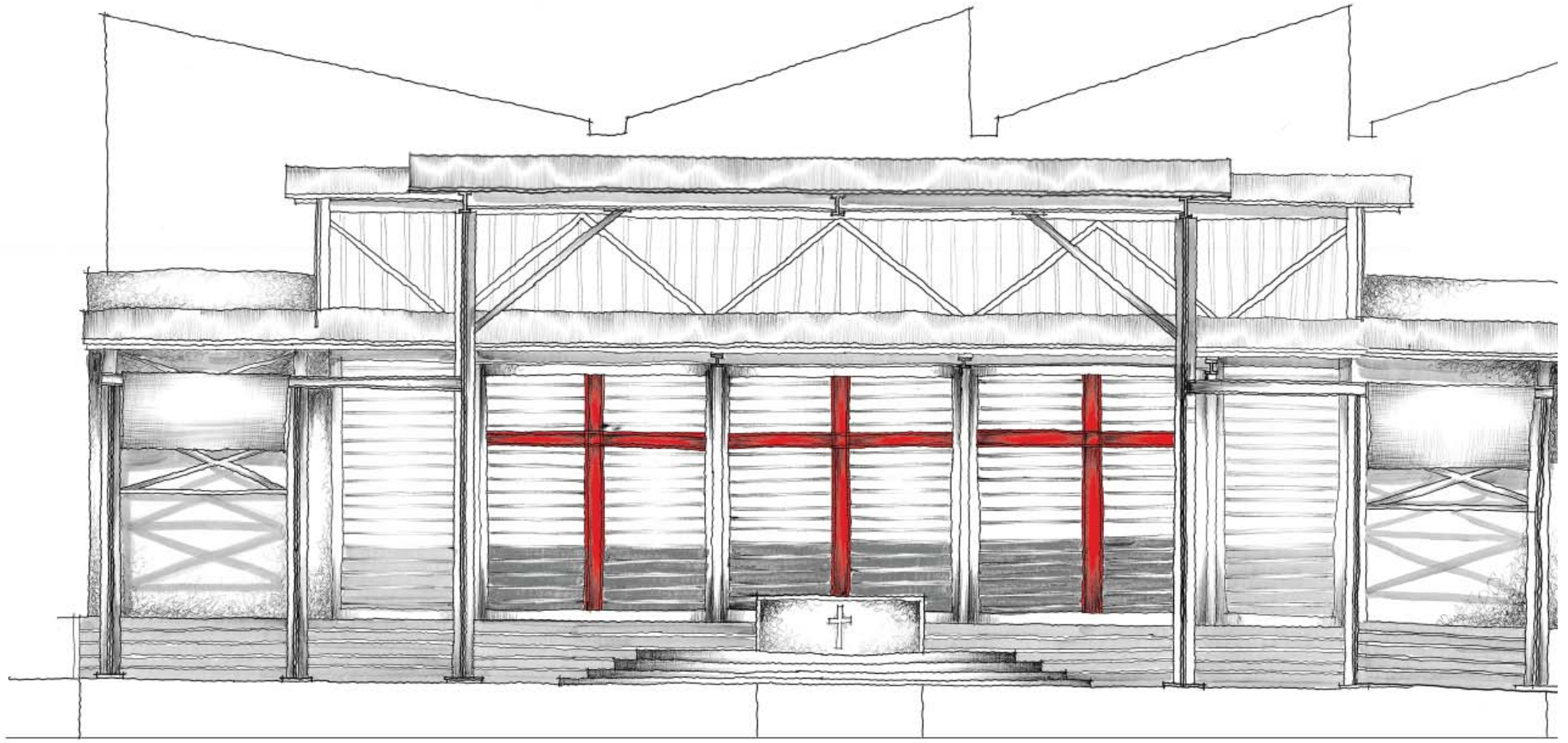


Fig.160.(By Author) 3D sketches of a community centre for Mamelodi East



Fig.161. (By Author) 3D Aerial view of a community centre for Mamelodi East



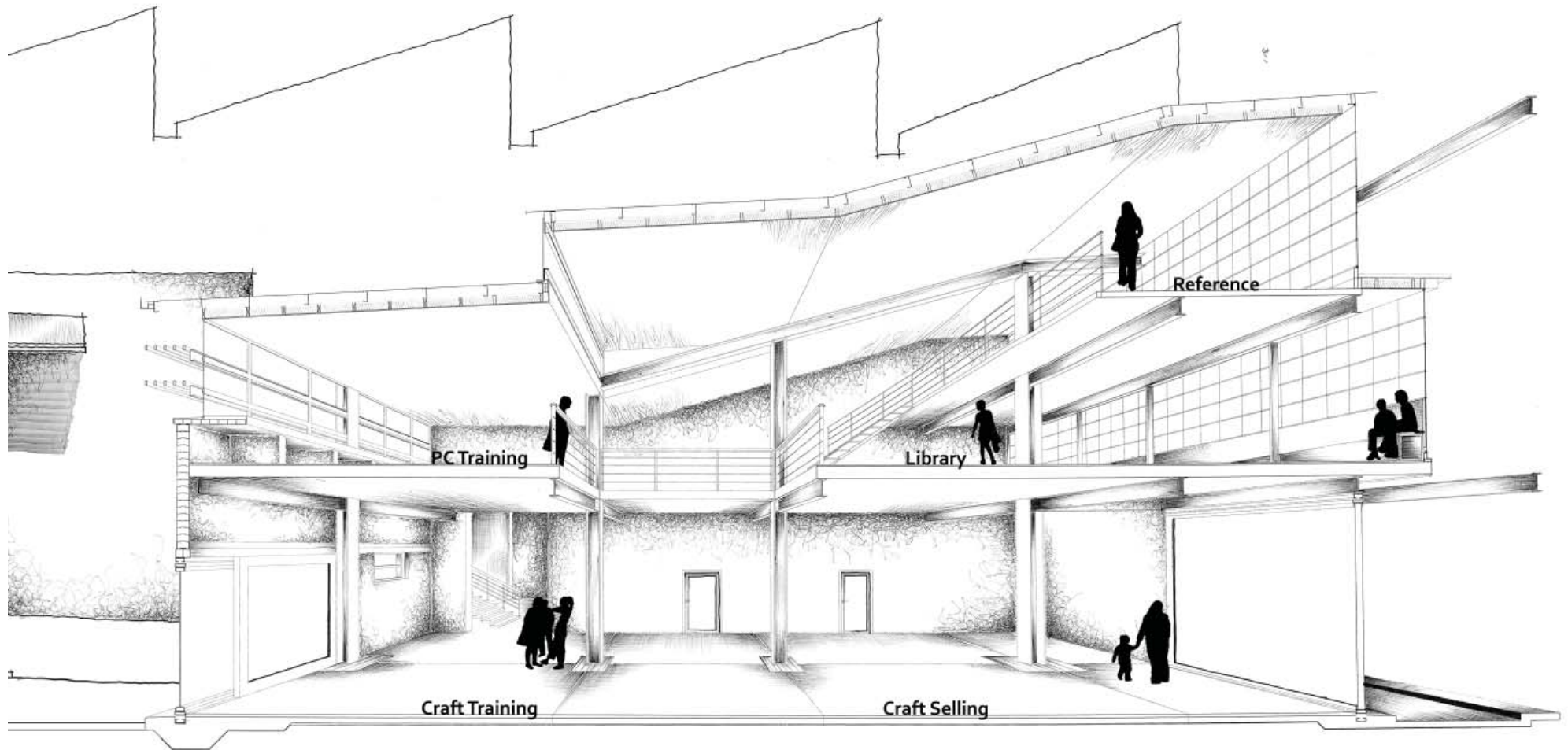


Fig.162.(By Author) Sectional Perspective of Craft Training and Selling and Resource Centre



Chapter 7

Technical Development

Design Guidelines

Choice of Materials

Location of Vegetation

Rainwater Harvesting

SBAT

Solar Testing

Waste

Services

Defensible Spaces

Structural System & Construction Process

General Guidelines

Materials: Structural System



- The design of roof systems should be able to facilitate rain water collection to be used to supplement the municipal water source.
- Especially on the public building, the roof should be able to accommodate the future installation of photo-voltaic panels for the generation of electricity.
- The building should not need artificial means of ventilation, and where possible building systems are to be achieved through passive means.
- The concept of “waste = food” should be employed and encouraged as far as possible through recycling of natural waste.
- Storm water should be encouraged to re-enter the sub soil, instead of being channelled to municipal drainage systems.
- Any planting on site should be indigenous, non-poisonous and provide adequate shading.
- Materials and structural system chosen should be able to reflect the two different conditions that the building interacts with, Fig.163.

A cold formed steel structural frame system was chosen because:

- This system allows for large spans to be supported by an aesthetically light structural frame.
- The structural system allows for internal flexibility of space as walling systems will not be load bearing.
- It also allows for flexibility of expansion as the basic system is already in place, should an extra floor level be needed.
- It is able to be prefabricated and galvanised off site, fixing holes will be predetermined allowing for a higher degree of accuracy.
- Prefabricated, standard elements will ensure that the structure is erected quickly and efficiently with minimum wastage.
- The majority of the junctions will be bolted to allow for ease of deconstruction or re-use.
- Steel is able to be recycled more easily as compared to concrete.
- Aesthetically steel as a material is drawn from the informal zozo shacks that are numerous in the surrounding area as well as drawing from ‘high technology’ as the intervention is a catalytic one, also in terms of architectural language.

Materials

The materials chosen had to satisfy certain criteria:

- The structural system and its infill elements must be able to be constructed by an unskilled or semi-skilled labour force
- The primary structural system must allow for flexibility of internal spaces and both outward and upward expansion of the complex over time.
- The materials must be able to optimise efficiency and decrease wastage during construction
- The materials should be able to be deconstructed with relative ease, and should be able to be reused or recycled into other building projects.
- They must also be able to be used in a construction method that is human labour driven, using mechanical equipment as little as possible.
- As far as possible, the materials must be aesthetically pleasing in their natural state, and should not need regular maintenance or extensive finishing added to them

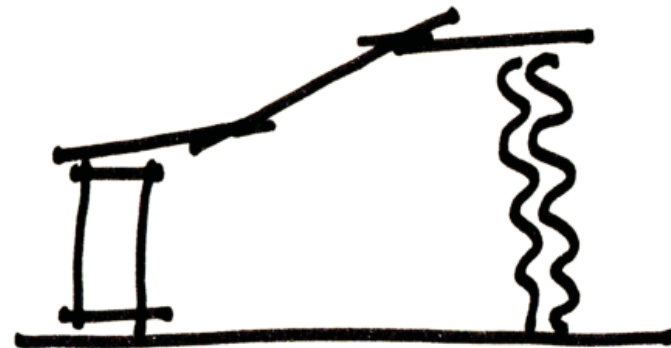


Fig.163.(By Author) Concept Sketch

Materials: Infill systems

Walling



Hydraform Dry Stacking Blocks are compressed soil cement blocks made from a Compressed Earth Block technology. This is the chosen walling system because:

- They are able to be made locally by the community as there are two existing concrete block makers in the vicinity, they will be supplied with the mobile block making machine, Fig.164, and employed to make blocks for the intervention. This in turn will expose the community to a different block technology available to them.
- Hydraform blocks, Fig.165, use 50% less cement [as little as 5% of the block is composed of cement] than conventional concrete blocks. Since 75% of the wall is dry stacked, there is a further saving on mortar needed., therefore they are efficient in terms of both cost and materials.
- The dry stacking method is quicker and easier to construct by unskilled labour, saving on time and human energy.
- The dry stacking blocks will also be more easily removed and possibly reused than conventional mortared walling systems.
- Transportation costs are greatly reduced as the block making takes place on site, where the local sub-soil is the main component.
- The Hydraform system has less than a third of the embodied energy and CO² content, as compared to fired clay face or clay stock brick work.

Hydraform, Accessed Accessed 20 September 2010



Fig.164.(Hydraform) Mobile block making machine



Fig.165.(Hydraform) 220mm Hydraform dry stacking block

First Floor Slab



The flooring system for the first floor slab is the composite steel and concrete slab system from QC Brownbuilt Flooring. The Permanent shuttering, in the form of QC panels, provides the following features:

- The panels provide shuttering to supporting the mass of the wet concrete and construction loads
- Together with the concrete fill, the panels provide the necessary tensile reinforcement, saving on additional construction materials.
- No additional ceiling is needed as the panels are ready for painting with PVA compound. This saves money that would otherwise be necessary for ceiling finishes.
- This system is able to be installed by semi-skilled labour and is adaptable to steel
- The system is able to achieve the spans necessary without the additional structure being installed.



Roof Sheeting

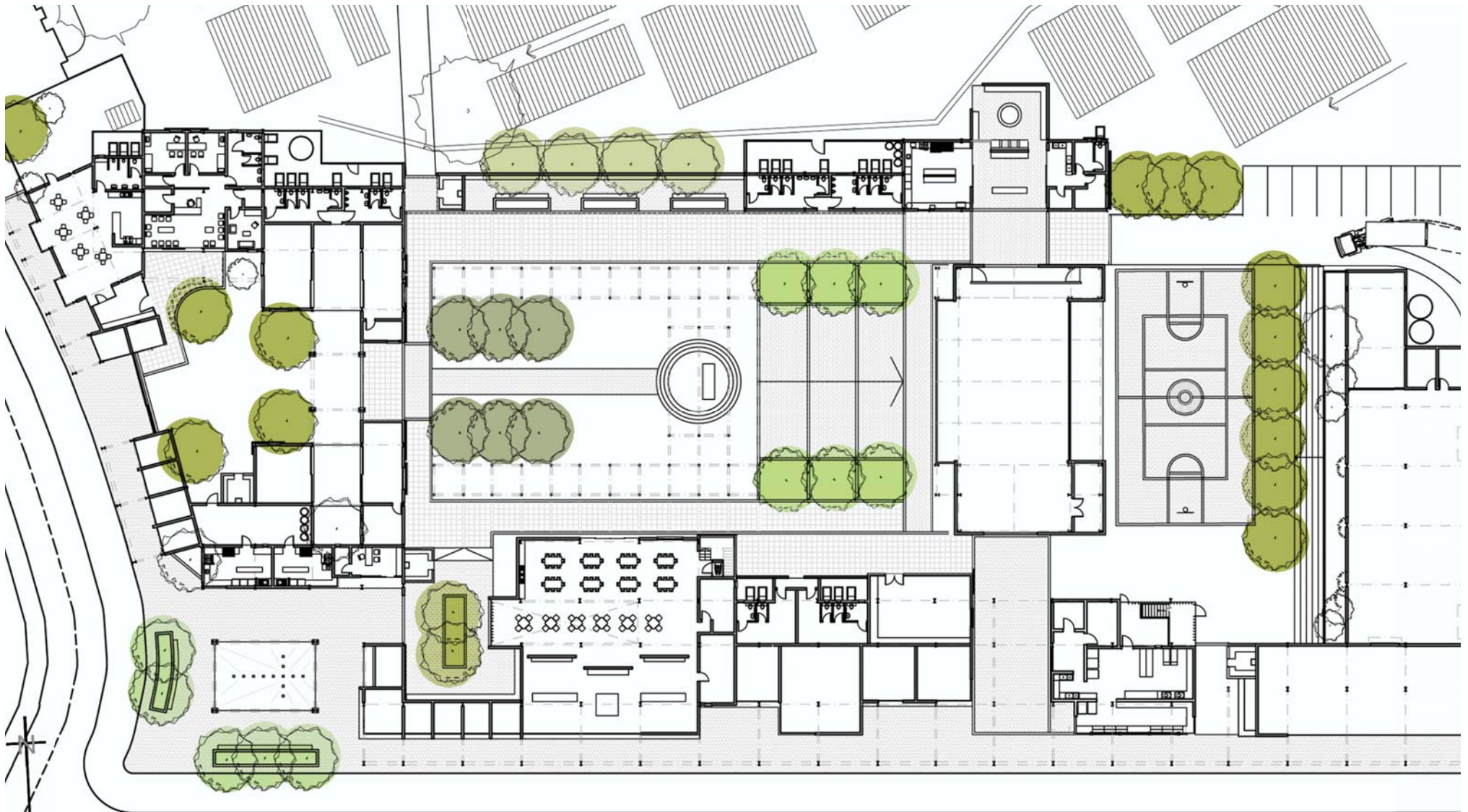
Roof sheeting was chosen as the desired roofing material as it is able to achieve many varied pitches. It is lightweight, easy to transport and is able to reflect sunlight, reducing heat gain.

Craftlock, deep profile sheeting is ideal for the intervention because:

- The roof sheets can be profiled on site, reducing transportation costs.
- The sheets comes in thinner widths but has deeper profiles so spans further and results in less wastage.
- The deep profile is able to achieve a much lower ideal roof pitch.
- The fixing system is also more difficult to break in through- reducing the risk of vandalism or burglary.

Fig.166.(By Author) Opposite Page- Plan showing location & tree species

Location and Choice of trees



Oleia Africana
[Wild Olive]



Acacia Karroo
[Sweet Thorn]



Euclea Crispa
[Blue Guarri]



Acacia Sieberiana
[Paperbark Thorn]



Celtis Africana
[White Stinkwood]

Rainwater Harvesting

Rainwater collected from rainwater tanks will supplement water used for irrigation of the vegetation and agriculture.

The approximate calculation below is used to determine the maximum harvesting capacity:

*1mm of rain allows you to harvest 1lt of water per m² of roof area
Allow for 15% wastage (Jojo Tanks, Accessed 4 September 2010)*

Maximum average monthly rainfall for Pretoria is 136mm, experienced in January, however less than 10mm of rainfall is experienced between June and August. This means that rainwater cannot be relied upon as the sole irrigation source.

South African Weather Service, Accessed 4 September 2010

Water from municipal sources will be used for hand washing, kitchen areas, showering and to supplement any rainwater deficit. To conserve water, flow control taps and shower heads will be installed.

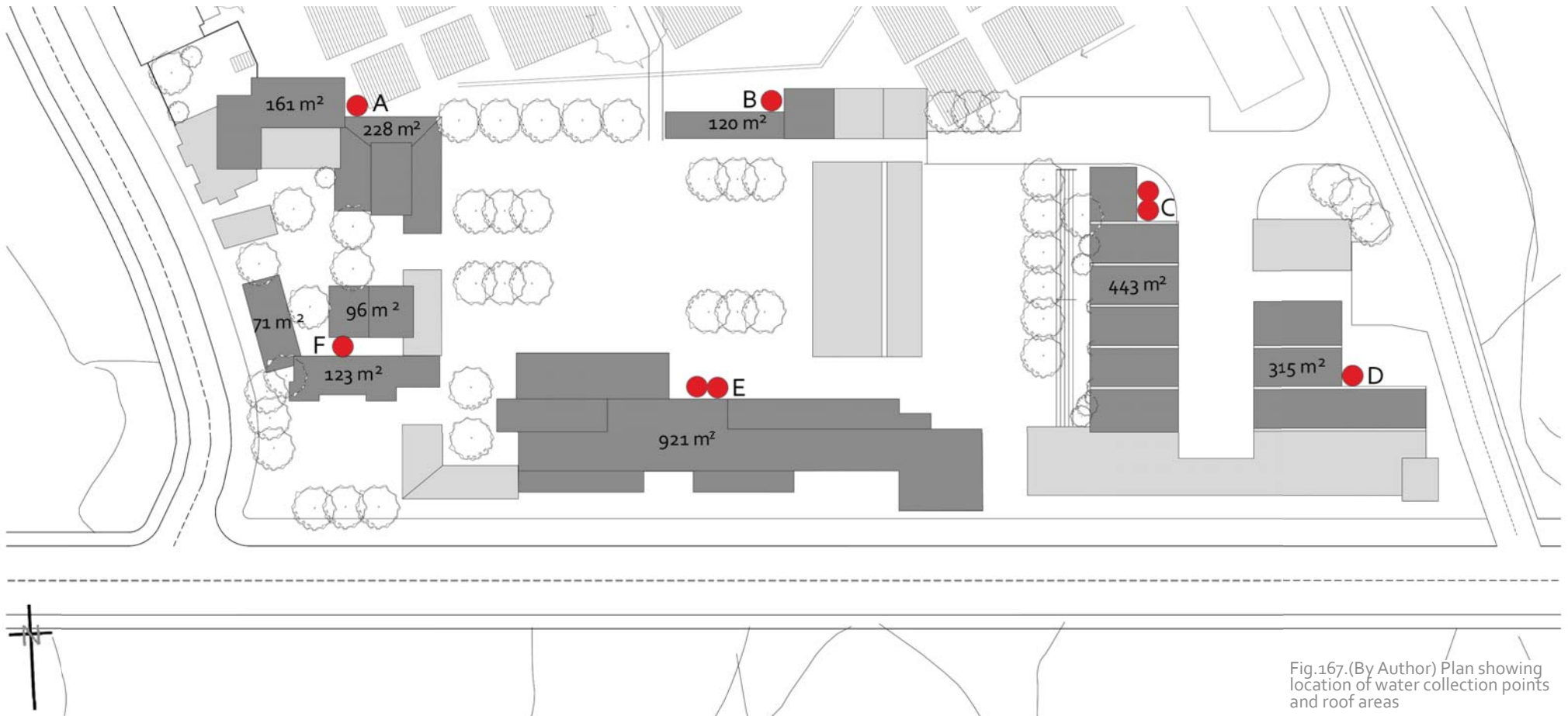


Fig.167.(By Author) Plan showing location of water collection points and roof areas

Maximum Collection Capacities:

Tank A

$$161\text{m}^2 + 228\text{m}^2 = 389\text{m}^2$$

$$389\text{m}^2 \times \text{max. average 136 litres of rainfall collected} = 52\,904 \text{ litres of water}$$

$$52\,904 - 15\% \text{ wastage} = 44\,968.4 \text{ litres}$$

Tank B

$$120\text{m}^2 \times \text{max. average 136 litres of rainfall collected} = 16\,320 \text{ litres of water}$$

$$16\,320 - 15\% \text{ wastage} = 13\,872 \text{ litres}$$

Tank C

$$443\text{m}^2 \times \text{max. average 136 litres of rainfall collected} = 60\,248 \text{ litres of water}$$

$$60\,248 - 15\% \text{ wastage} = 51\,210.8 \text{ litres}$$

Tank D

$$315\text{m}^2 \times \text{max. average 136 litres of rainfall collected} = 42\,840 \text{ litres of water}$$

$$42\,840 - 15\% \text{ wastage} = 36\,414 \text{ litres}$$

Tank E

$$921\text{m}^2 \times \text{max. average 136 litres of rainfall collected} = 125\,256 \text{ litres of water}$$

$$125\,256 - 15\% \text{ wastage} = 106\,467.6 \text{ litres}$$

Tank F

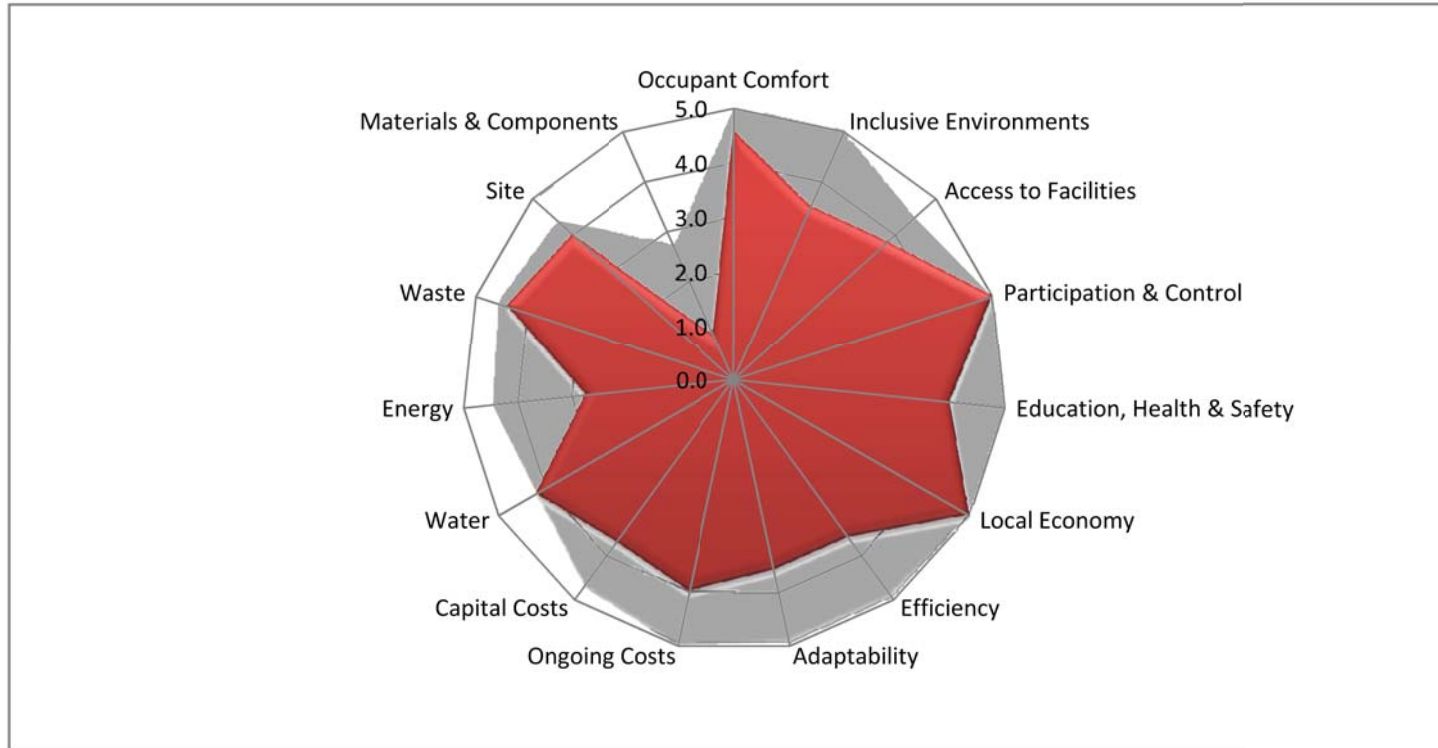
$$96\text{m}^2 + 123\text{m}^2 + 71\text{m}^2 = 290\text{m}^2$$

$$290\text{m}^2 \times \text{max. average 136 litres of rainfall collected} = 39\,440 \text{ litres of water}$$

$$39\,440 - 15\% \text{ wastage} = 33\,524 \text{ litres}$$

SUSTAINABLE BUILDING ASSESSMENT TOOL (SBAT- P) V1

| PROJECT | ASSESSMENT |
|--|---|
| Project title: Multi- Service Centre for Mamelodi East | Date: 2010 |
| Location: Mamelodi East, Pretoria | Undertaken by: Tamryn Nel |
| Building type: Mixed Use | Company / organisation: University of Pretoria |
| Internal area Ground Floor (m2): 3197.93m ² | |
| Internal area First Floor (m2): 912.79m ² | Total Internal area (m2): 4110.72m ² |



Social 4.2

Economic 4.0

Environmental 3.3

Overall 3.8

Classification

Fig.168.(By Author) SBAT goals and projected results

Sustainable Building Assessment Tool

The intention of the intervention is to design a complex that uses as many passive systems as possible. This is largely due to the location, scale and function of the buildings.

Although the buildings do not utilise many recycled materials, the intention is to use as many materials that are able to be recycled or re-used as possible. The structure has been designed so that it is relatively easy to dismantle or expand through the use of a regular steel frame and infill system. It is unfortunate that the SBAT does not take this into consideration- and therefore the project scores very low in terms of materiality.

The steel frame is manufactured and galvanised off site and assembled upon arrival through the Building Trade Training initiative. As far as possible, the elements are bolted instead of welded together.

It was intended to score highly with regard to 'Community and Access to Facilities', however lacking services such as a bank brought the score downwards.

Universal access is difficult, as to gain access to the second floor would either require a large ramp or a lift - neither of which are financially viable for such an intervention. A platform lift, specifically to accommodate the disabled is cheaper and less structurally intensive than an elevator.

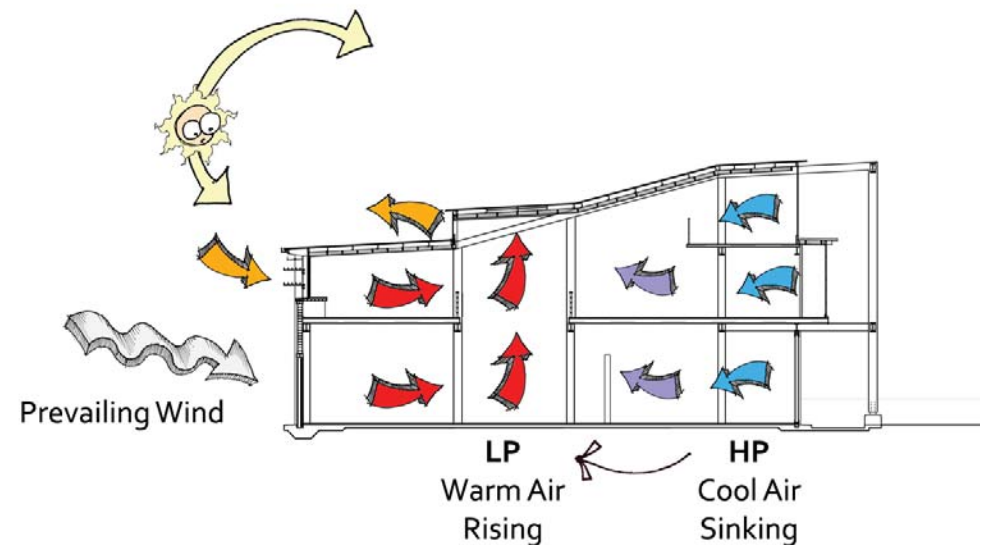
Passive Ventilation

The North facade of the structure is positioned to be able to take advantage of both the prevailing wind direction and the ideal orientation.

The prevailing wind which is from a North Easterly direction will be able to travel through the building and encourage natural cross ventilation.

The Northern face will naturally be warmer as it would be heated by the sunlight, this creates a relative Low Pressure, where the warm air rises. The Southern face does not receive direct sunlight and therefore will hold a relative High Pressure, where the cooler air sinks.

The warm air rises to escape from the vent in the roof eaves, drawing the cooler air through the building as air naturally moves from a High Pressure to a Low Pressure.



Solar Testing

The Public Edge has a desirable orientation for the local climate. It has its major faces orientated North-South, while the smaller East -West faces are able to be easily shielded from harsh low angle morning and afternoon sunlight.

The dates tested were the summer and winter solstices because these are the two extremes of sunlighting conditions. The solar path over time will vary between these two extremes.

The times modelled were 10am, 12pm and 2pm. These times are seen to be good representatives of morning, midday and afternoon daylighting conditions. Times that are earlier than 10am and later than 2pm would see the sun moving towards the Eastern or Western portions of the sky, thus having less of a direct impact on the major faces and internal spaces.

The design aims to shield the North facing rooms from too much direct sunlight, as this could result in thermal discomfort during summer. This is done through the use of large roof overhangs, horizontal solar control and relatively small openings.

The Southern facade employs large amounts of transparent glazing as harsh incoming solar radiation is not a problem and large amounts of ambient light can be permitted. The light shelf, formed by the projecting window boxes, bounces this ambient light into the internal spaces.

This modelling exercise was deemed to be successful as minimal direct summer sunlight enters the spaces, while in winter the sun is able to enter more freely, due to the sun's relatively lower angle.



Fig.169.(By Author) Section showing the sun paths at 10am, 12pm and 2pm on December 22nd.

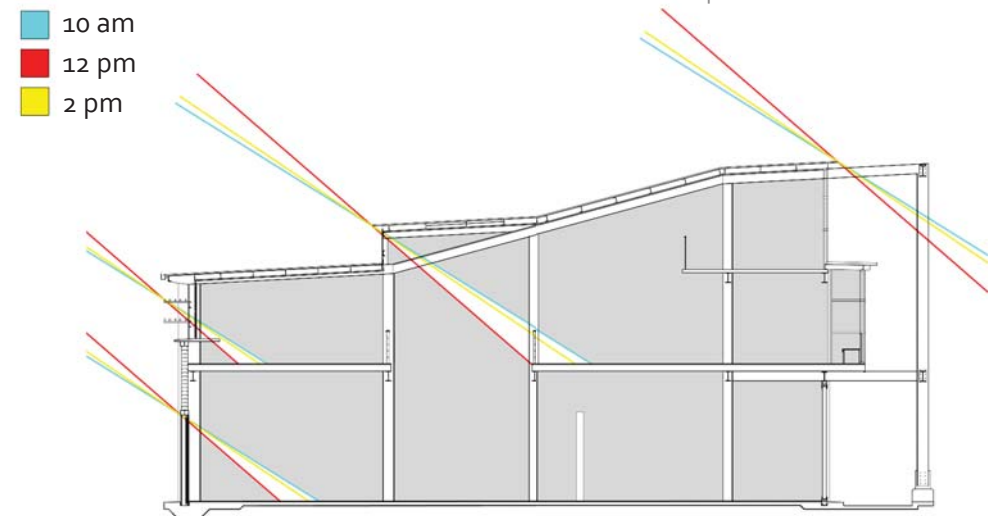


Fig.170.(By Author) Section showing the sun paths at 10am, 12pm and 2pm on June 22nd.

Waste

Within the centre itself, education and the practice of recycling will be encouraged.

Sewage

As laid out in the design guidelines, it was chosen to incorporate a passive sewage system using composting toilet technology. This will allow for the compost generated to be used as fertiliser in the agricultural fields

The Enviro-Loo system:

- Does not use water.
- Does not use chemicals.
- Is a closed circuit system.
- Is odourless.
- Does not require expensive sewage treatment plants.
- Does not attract flies.
- Requires no power.
- Has minimum monthly operating costs.

Enviro Options , Accessed 16 October 2010

Organic Waste

Organic waste produced in the kitchens or discarded by the public is to be disposed of in a worm farm. Earthworms turn the organic waste into nutrient rich compost to be used in the agricultural fields.

Inorganic Waste

Inorganic waste is to be sorted at the recycling depot and transported to a recycling centre.



Fig.171.(Enviro-Options)
View of installed enviro-loos

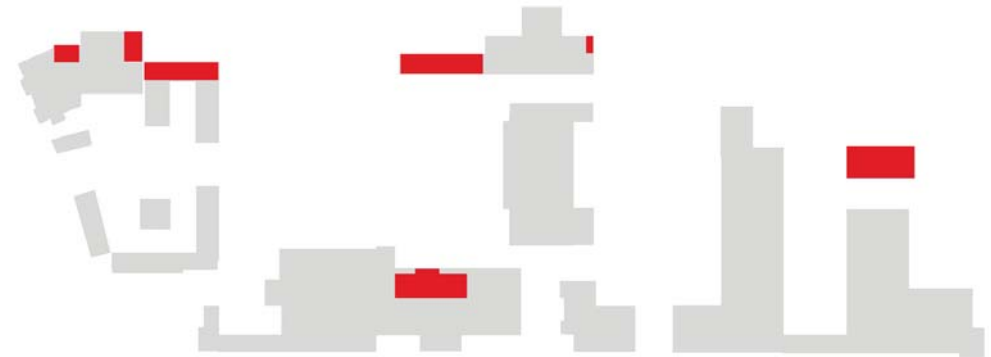


Fig.172.(By Author) Graphic
plan showing the location of
ablutions

Fire

In any building of two or three storeys in height shall not be required to include any emergency route: Provided that where such building is -

- i. any building of two storeys in height where the population of the upper storey is more than 25 persons; or*
- ii. any building of three storeys in height; such building shall be provided with not less than two such escape routes.*

SABS 0400 Part TT 16.2b

Furthermore as indicated it is ensured that there is a Fire Hose Reel provided to service public and higher risk areas as per Part TT34.1, these are indicated by 30m radius circles, Fig.173. Portable fire extinguishers are to be provided as per Part TT 37.2.

The first floor of the public building is catered for by a dedicated escape stair, to the east of the structure.

The maximum structural stability time, as outlined in Part TT7d, required for any structure is for :

- Class C2 - Museum - 60 mins of Stability
Occupancy comprising a museum, art gallery or library
- Class A5- Outdoor sport - 60 mins of Stability
Occupancy where persons view outdoor sport events

The rest of the functions contained in the intervention all require 30 mins of Stability:

- Class D2- Moderate risk industrial
- Class F2 -Small shop
- Class G1 -Offices
- Class J2 - Moderate risk storage









Part TT7f states that

When tested in accordance with SABS 0177: Part II, satisfy the requirement for stability for a period not less than that given in (Part TT7d) for the height of the building so given.

(c) The structural elements it shall be permissible for structural components to be of -

- (i) unprotected steel*
- (aa) In any single storey building;*
- (bb) In any double storey building where the occupancy is classified:*

- A3 - Places of instruction
- A4 - Worship
- A5 - Outdoor sport
- B2 - Moderate risk commercial service
- B3 - Low risk commercial service
- C2 - Museum
- D2 - Moderate-risk industrial
- D3- Low-risk industrial
- D4 - Plant Room
- G1 - Offices
- H4 - Dwelling house
- J2 - Moderate-risk storage
- J3 or J4 - Low-risk storage or parking garage

-  Water Lines
-  Fire protection
-  Water Meter
-  30m radius from FHR
-  Stopcock
-  Storm Water
-  Bin areas
-  Bin
-  Ablutions

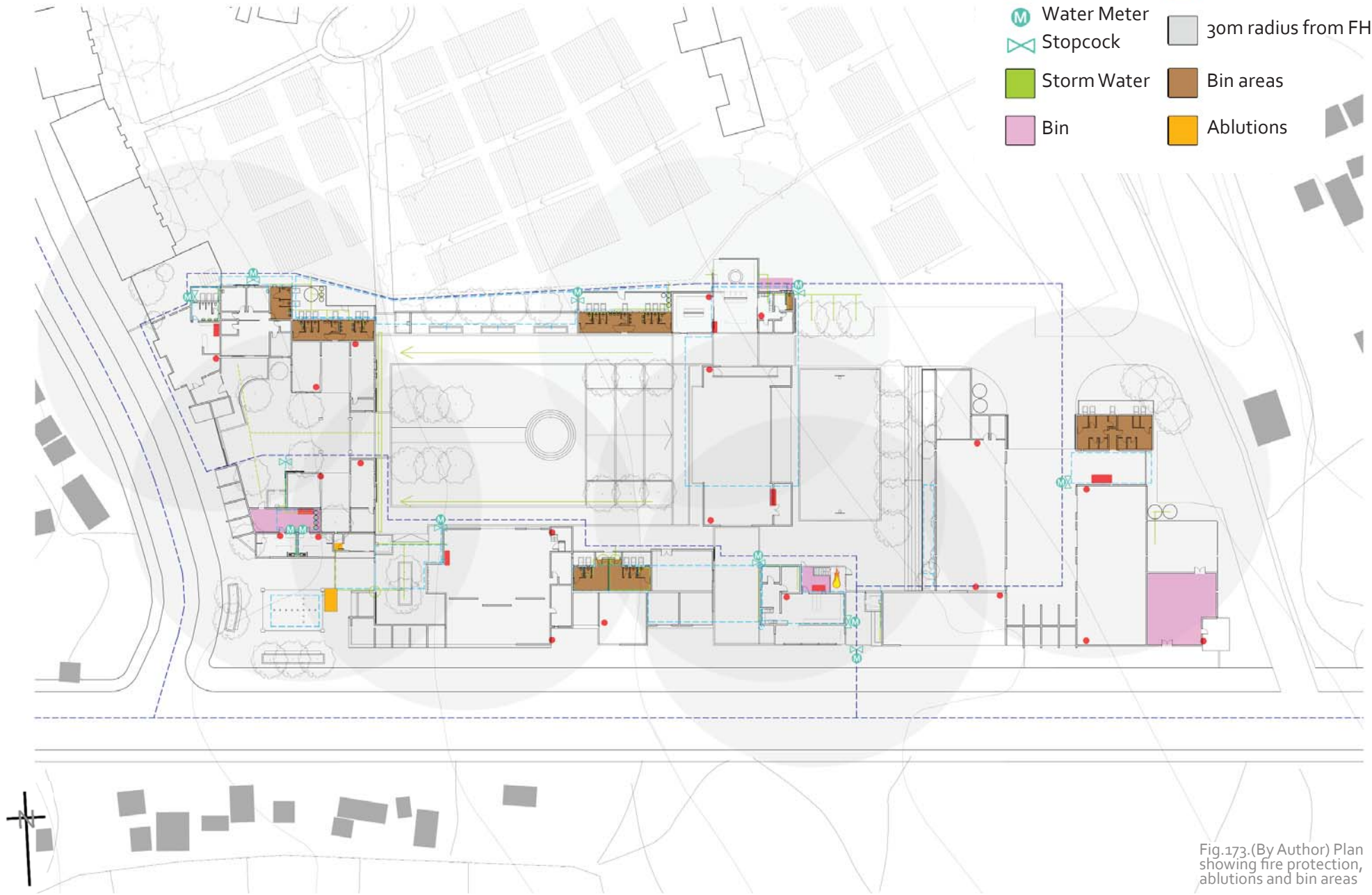


Fig.173.(By Author) Plan showing fire protection, ablutions and bin areas

Defensible Spaces

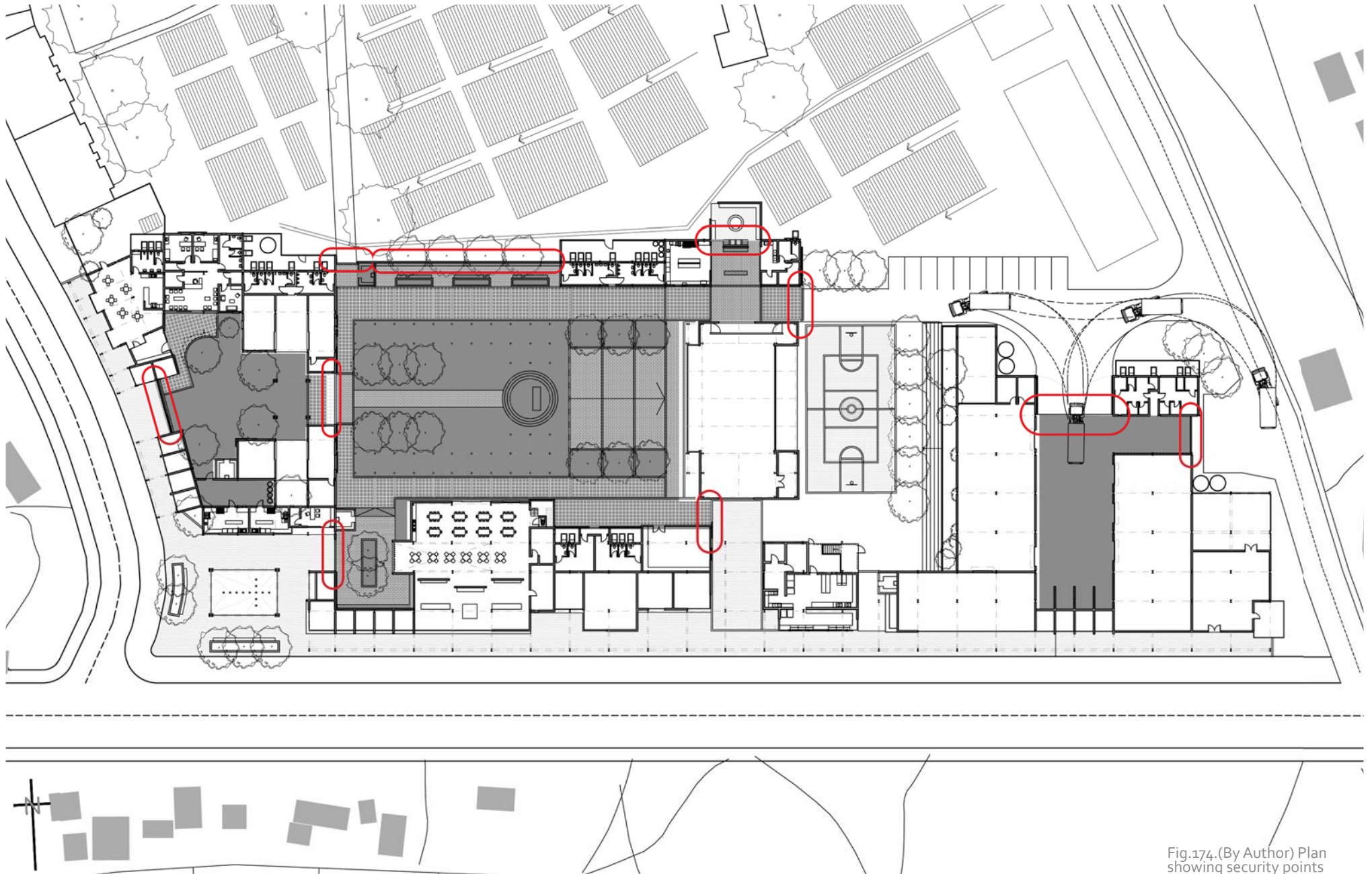


Fig.174.(By Author) Plan showing security points

Structural System & Construction Process

Phase 1

Four of the six existing agricultural sheds that are deemed to be in the best condition are made good and moved alongside the existing service road, Fig.176.

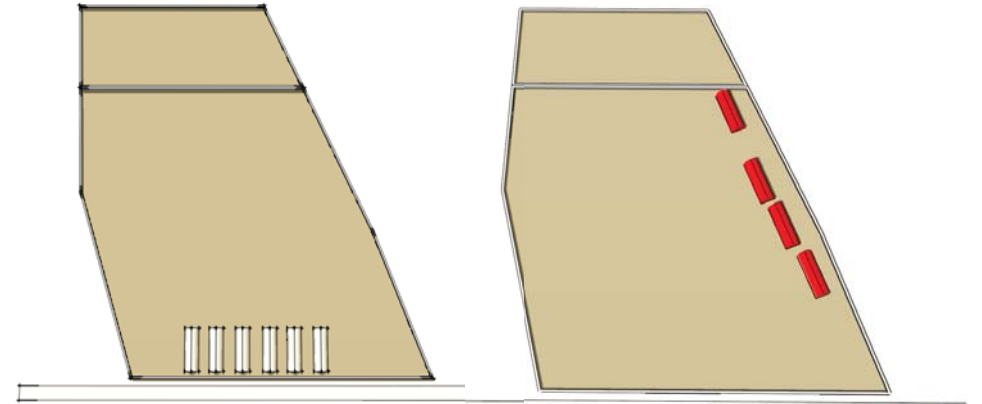


Fig.175.(By Author) Existing Structures

Fig.176.(By Author) Phase 1

Phase 2

The production complex is constructed as these functions are able to act independently of the functioning of the others, also the building trade training assists with training labour to be used in the construction of the rest of the buildings, Fig.177. The food packing and processing plant is directly related to the existing functions on site. Access remains via the existing service entrance.

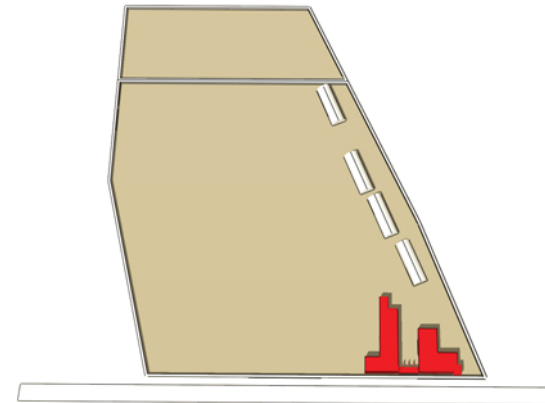


Fig.177.(By Author) Phase 2

Phase 3

The students from the building trade training initiative assist in construction and assembly of the rest of the intervention, beginning with the public edge. The frame system and ground floor slab are erected first, Fig.178, thereafter the first floor slab is poured. Once the primary structure is completed, the walling and roof will be installed.

At this phase the Southern boundary fence is removed, allowing for public interface to take place.

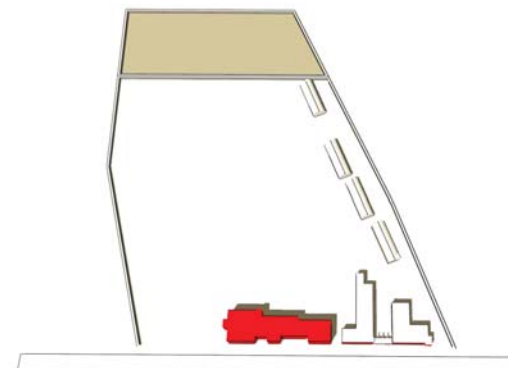


Fig.178.(By Author) Phase 3

Phase 4

The hall, kitchen, ablution block and sacred space are constructed, Fig.179. Structural elements needed for the hall's structural system are pre-fabricated and assembled on site using equipment at the building trade training centre.

Public access is directly from the South of the site.

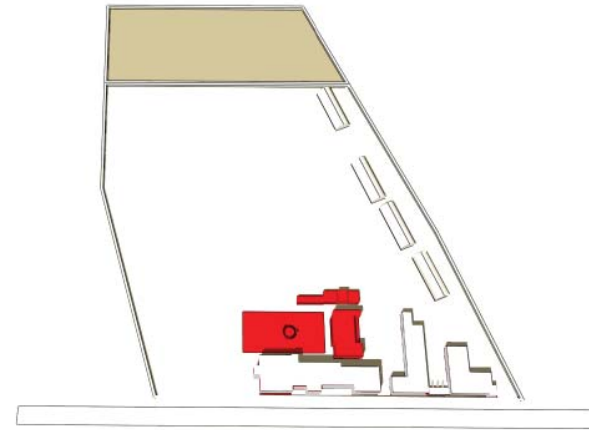


Fig.179.(By Author) Phase 4

Phase 5

The public square and community functions are constructed, Fig.180. The remaining boundary walls are removed. Access is via the entry points provided by the structural configuration.

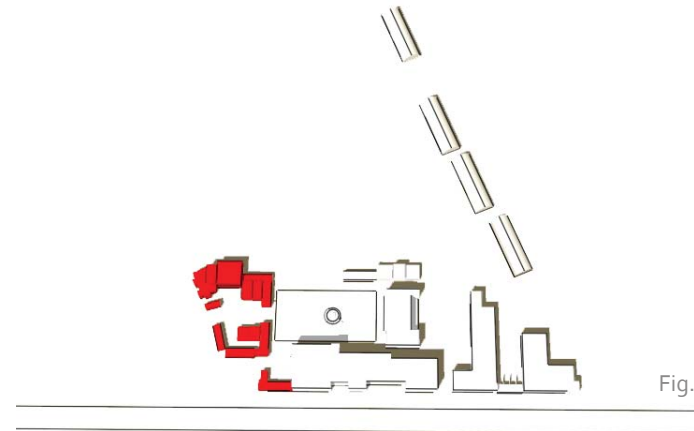


Fig.180.(By Author) Phase 5

Phase 6

Students from the building trade training will then begin construction of the social housing scheme proposed for the Northern portion of the site, Fig.181. It will be made available to them to be able to gain a unit in exchange for their services.

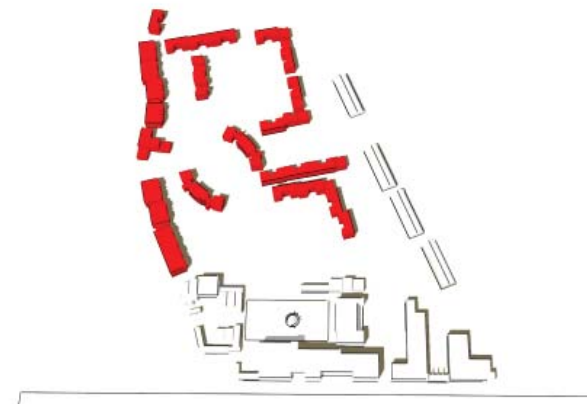


Fig.181.(By Author) Phase 6

Within keeping to the guidelines set out, as much as possible should be constructed using manual labour in order to further job creation and training. This manual labour force will be sourced from the community, and the construction process will tie into the learning curriculum hosted by the building trade training centre.

The supervising contractor should also be from the local community. This process will take longer than mechanically driven building processes but it will provide much needed income and skills benefits to the local inhabitants, while also fostering a sense of ownership.

Foundations & Ground Floor Slab

All foundations and ground floor slabs, Fig.182, will be prepared through manual labour, Fig.183. Concrete will be poured using a concrete mixer to achieve a uniform surface and prevent cracking.

Primary Structure

The structural elements will be manufactured off-site. This will allow for fixing points to be prepared and efficient galvanising to be carried out. The steel elements will then be transported to site. To allow for easy transportation, it is ensured that no element, with the exception of the hall, is longer than 13m. Upon arrival, the system is assembled on site, through the guidance of the building trade training center.

The column system along Tsamaya Road will be constructed first, as it requires a continuous feature beam, Fig.184. Thereafter, each grid line of columns will be fixed together on the ground and pulled into place, Fig.186. Once positioned, the base plates are bolted to their footings, and fixed to the feature beams and column system, providing stability, Fig.185.

This process will take place along the grid lines in a process running East to West. This will allow for the space needed without endangering the existing structure, as built in Phase 2.

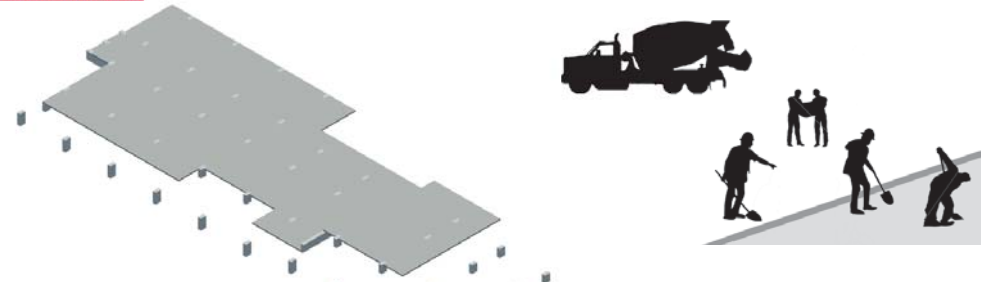


Fig.182.(By Author) Slab and column footings

Fig.183.(By Author) Sketch showing construction scene

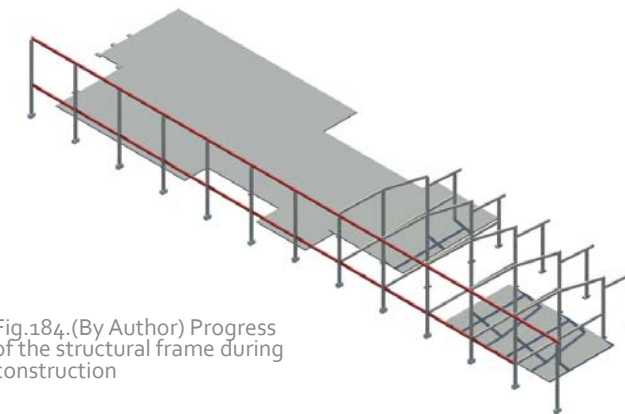


Fig.184.(By Author) Progress of the structural frame during construction

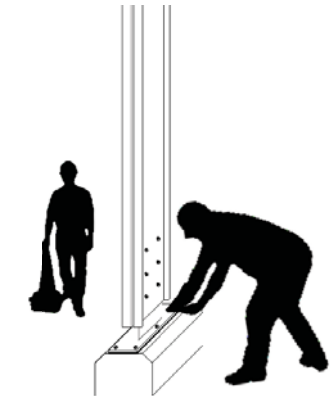


Fig.185.(By Author) Sketch showing construction scene



Fig.186.(By Author) Sketch showing construction scene

First Floor Slab

The first floor slab, Fig.187, is composed of a QC Brown Built reinforced composite steel and concrete slab system. This system uses steel shuttering to provide tensile reinforcing and to support the mass and loading of the wet concrete. The shuttering will be installed and bolted, as per manufacturers specifications, to the steel frame. These elements will be fixed into position using a manual labour force, sourced from the local community, Fig.188.

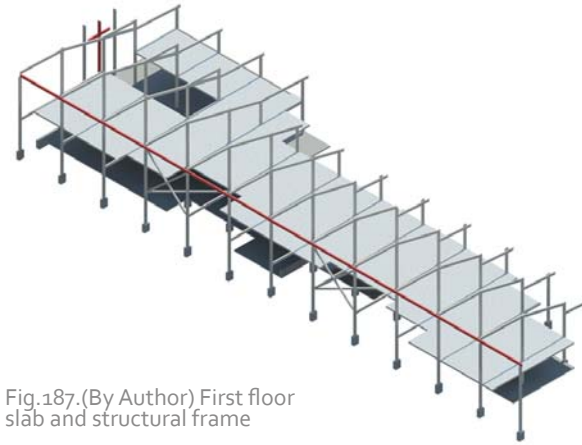


Fig.187.(By Author) First floor slab and structural frame



Fig.188.(By Author) Sketch showing construction scene

Roof

The roofing system will be installed before the infill walling materials as the installation of a roof will allow work to continue through most weather, also this system is an extension of the same structural learning process, Fig.189, Fig.190.

The roof sheeting materials will be transported to the site. The sheets will be profiled as needed to reduce wastage and potential damage.

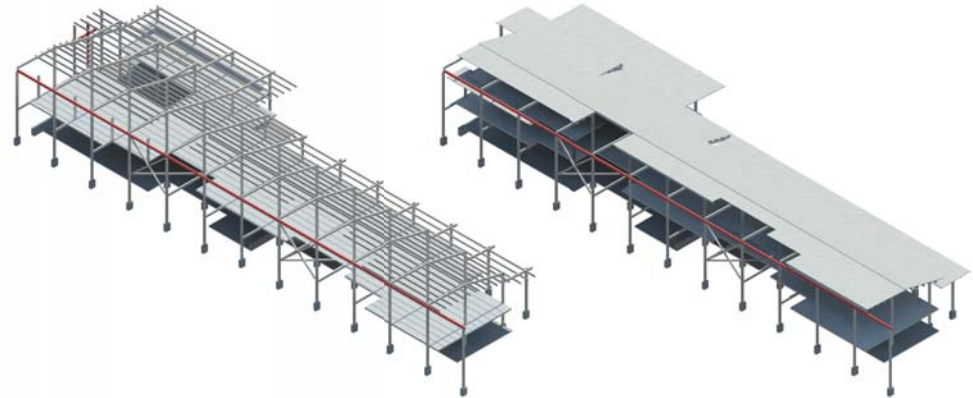


Fig.189.(By Author) Installation of purlins

Fig.190.(By Author) Structural frame and roof

Infill

While the construction process has been taking place, the local block makers would have begun the manufacture of the dry stacking hydraform bricks.

This system will allow an unskilled labour force to quickly and easily construct the internal and external walls, Fig.192.

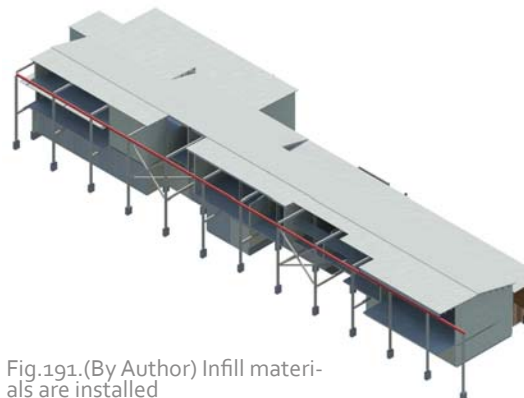


Fig.191.(By Author) Infill materials are installed



Fig.192.(By Author) Building process with Hyraform blocks

Note: Where possible, building materials will be stored within the building trade training building and its associated courtyard as a safety precaution, and to reduce the risk of theft.

Structural Model: Public Edge

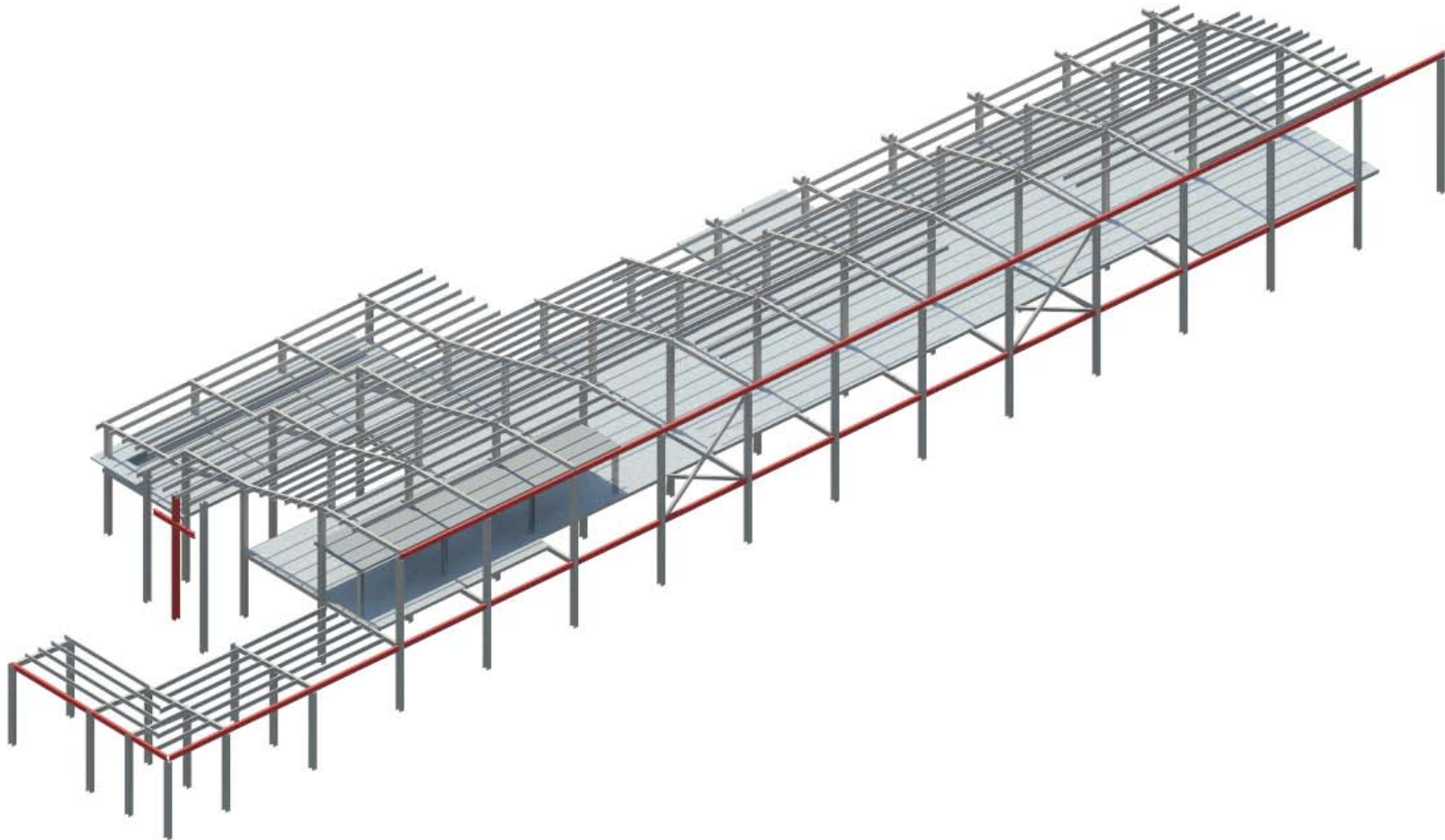


Fig.193.(By Author) 3D structural model of the public edge

Structural Model: Hall

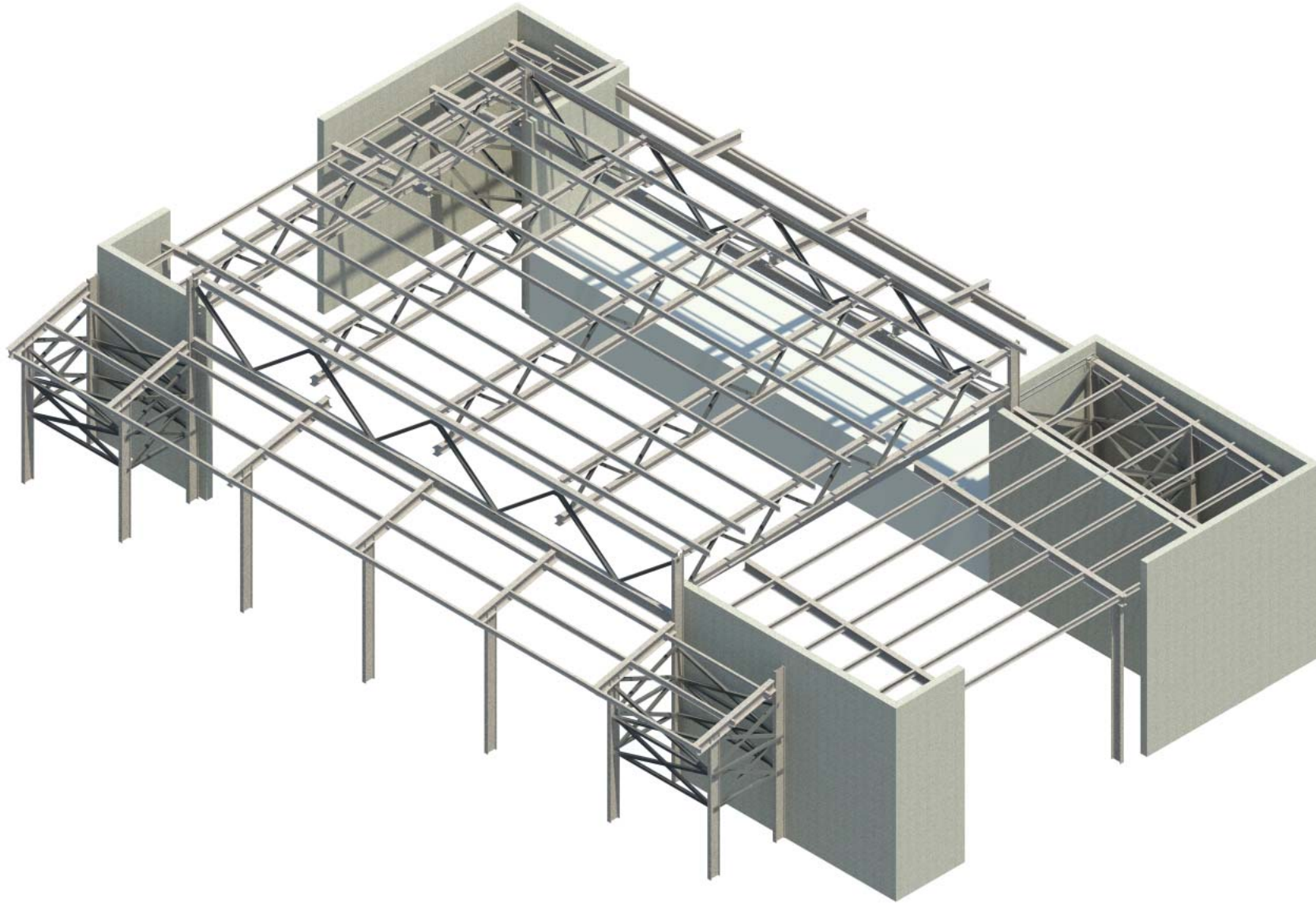


Fig.194.(By Author) 3D structural model of the hall

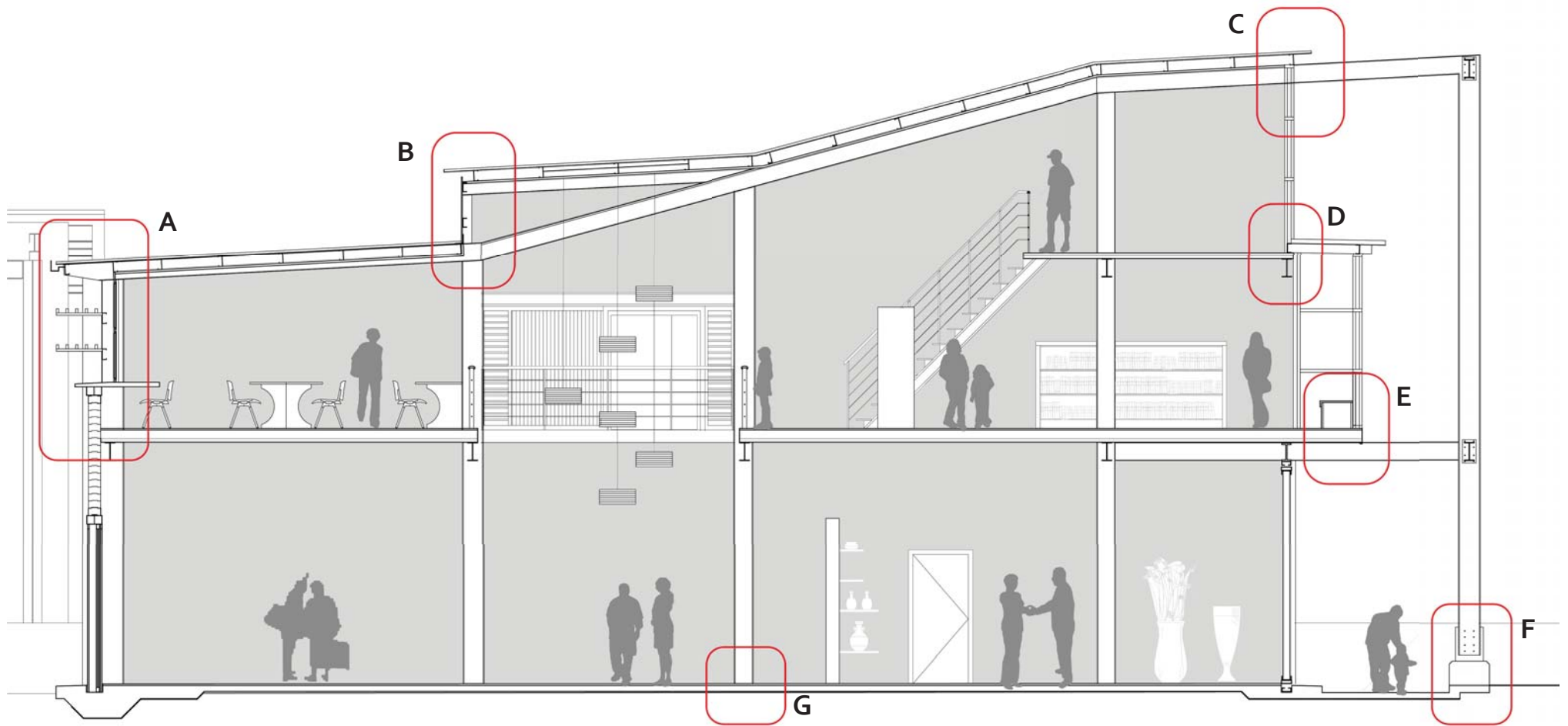


Fig.195. (By Author) Detailed section of the Public Edge through resource centre and craft training

Detail A

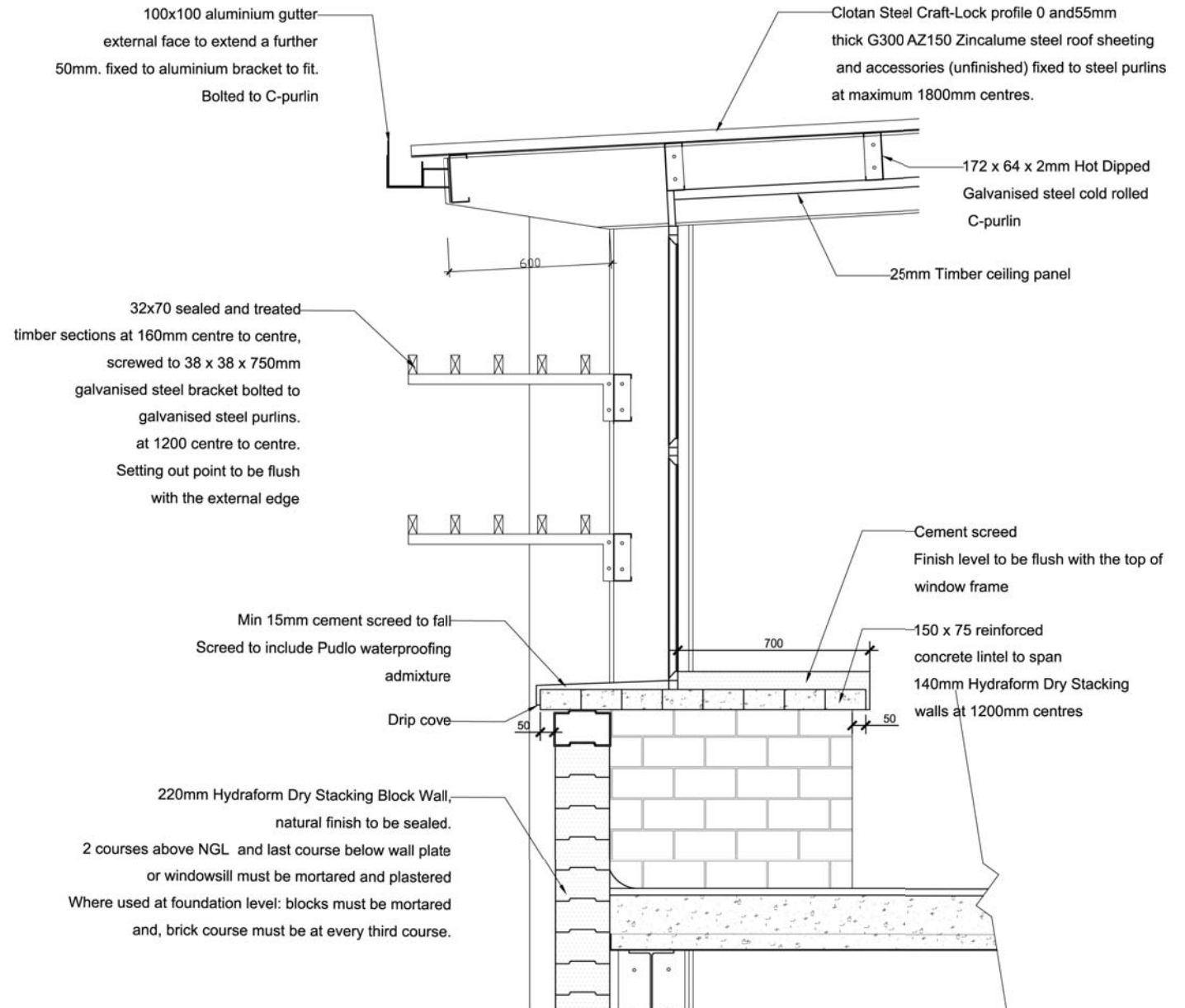


Fig.196.(By Author) Detail A

Detail B

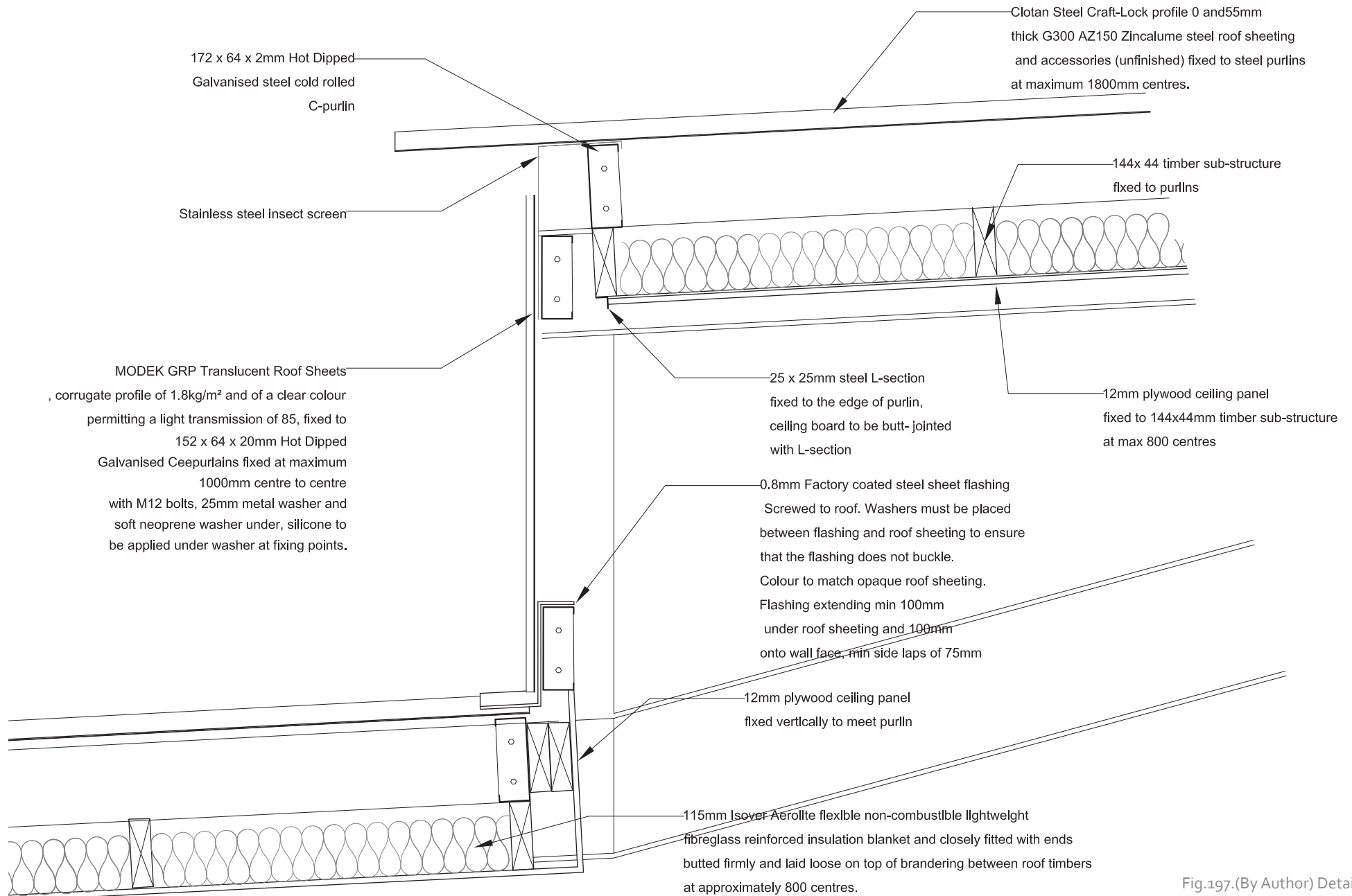


Fig.197.(By Author) Detail B

Detail C

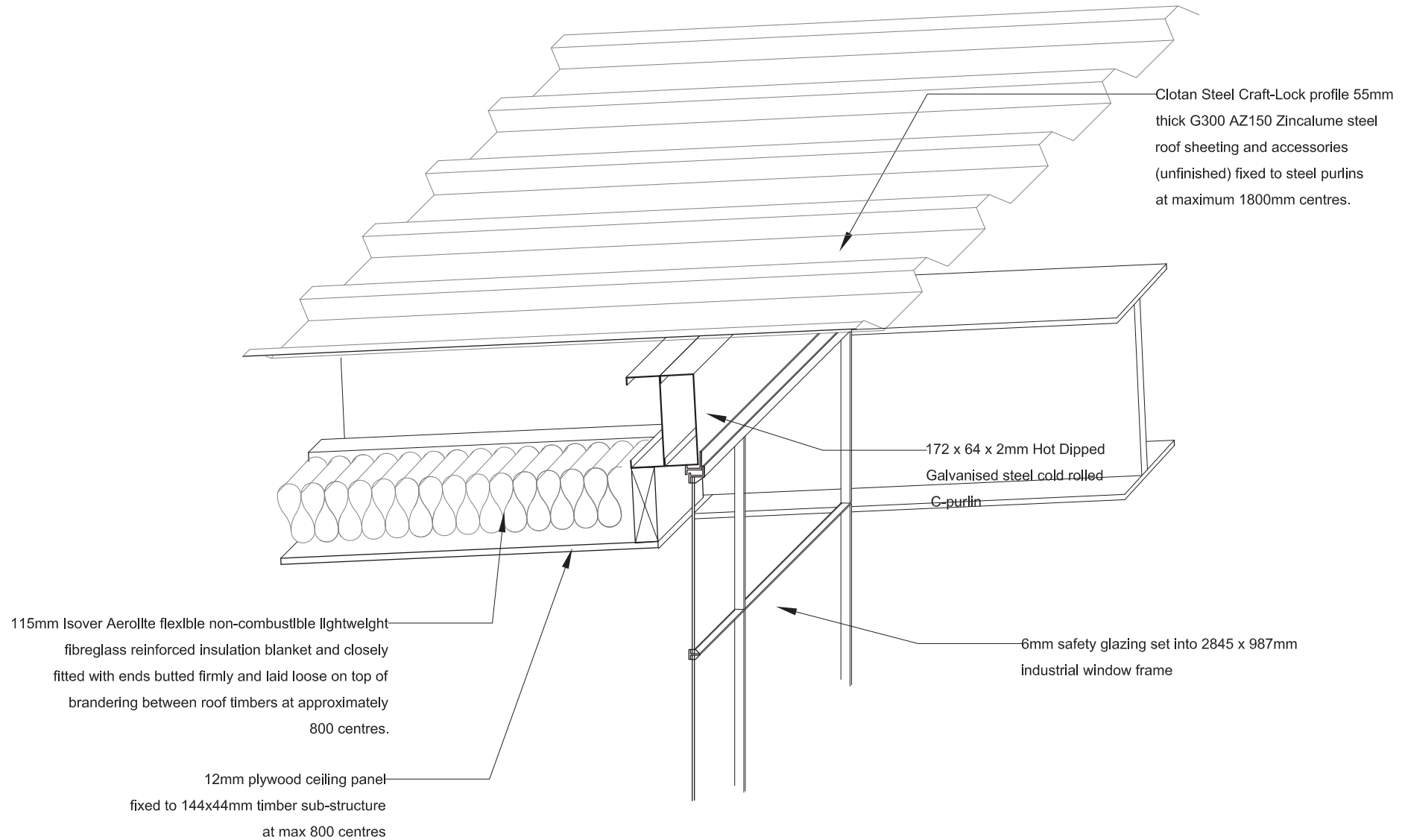


Fig.198.(By Author) Detail C

Detail D

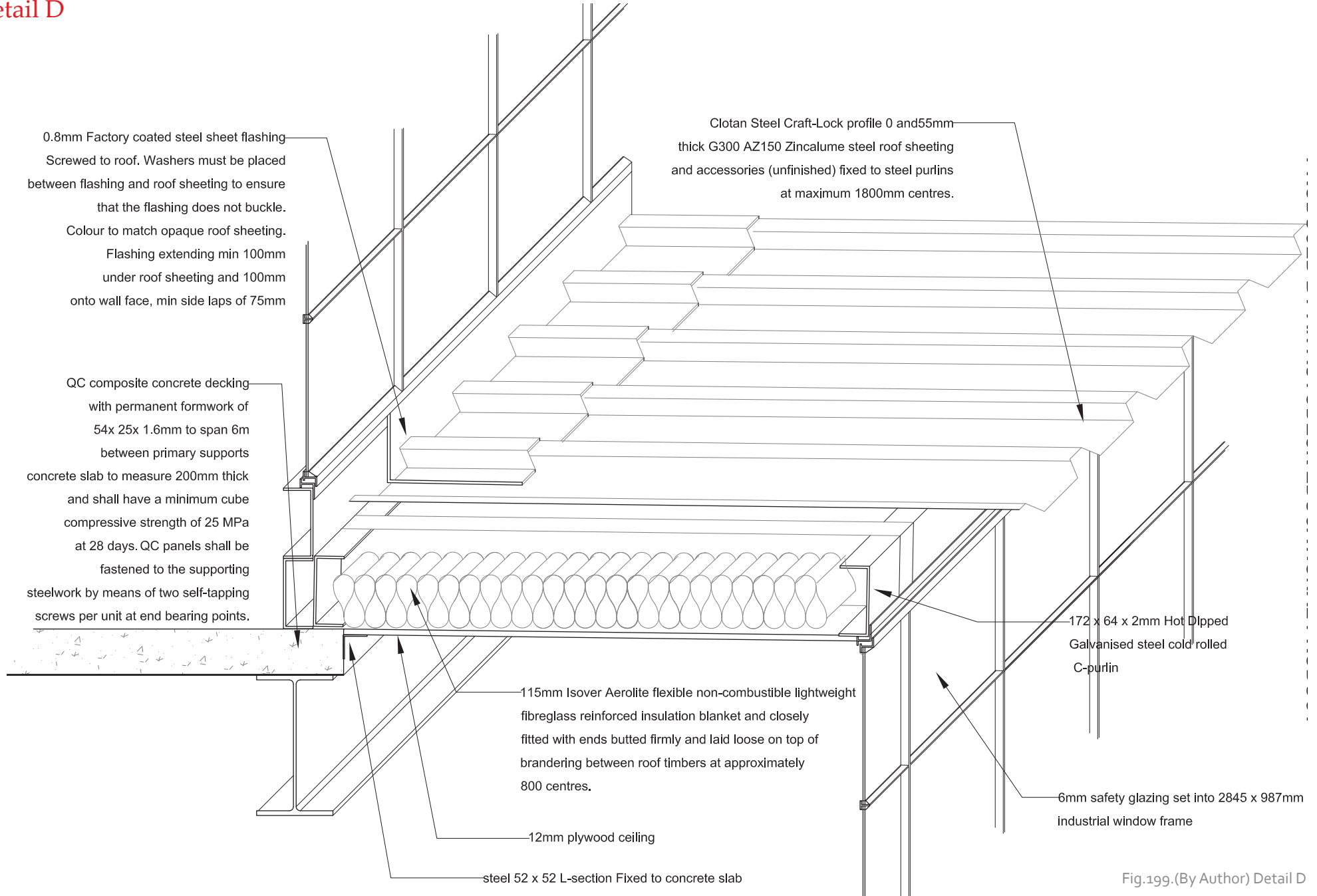


Fig.199.(By Author) Detail D

Detail E

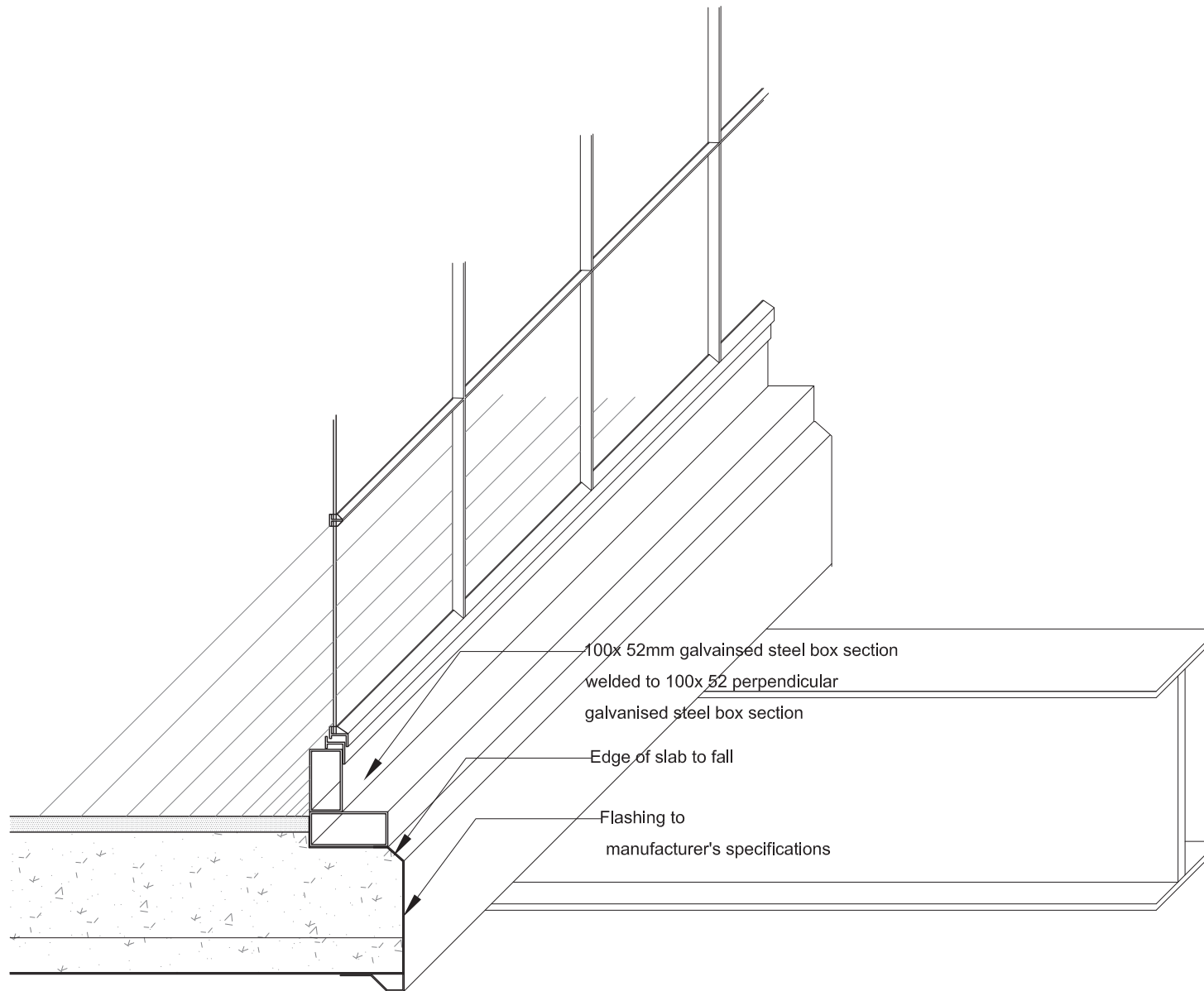


Fig.200.(By Author) Detail E

Detail F

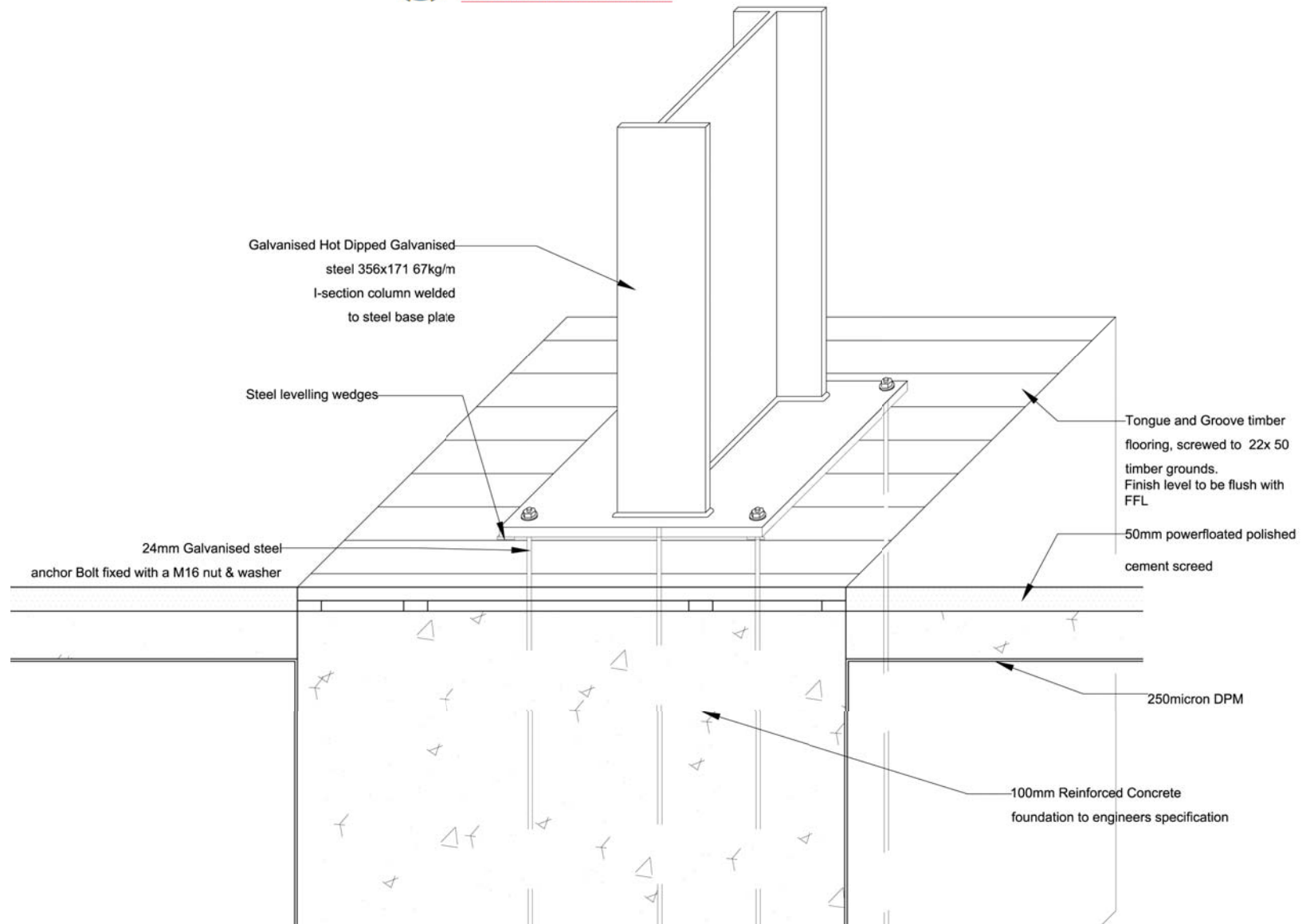


Fig.201.(By Author) Detail F

Detail G

As mentioned earlier, the structural grid represents God, the question regarding the footings on the exposed public area is:

How does God touch the ground?

The column is split into two back-to-back C profiles and bolted together with a plate between them.

At the footing level the C-section columns stop before they touch the footing, "transforming" into the plate, which then extends to meet the footing - which in turn, rises up to meet it.

This is symbolic of the Holy Trinity, where the Father and the Holy Spirit are represented by the C-sections and Jesus comes from them, transforming into another element, man, and touches the earth. In turn the earth rises up to meet Him.

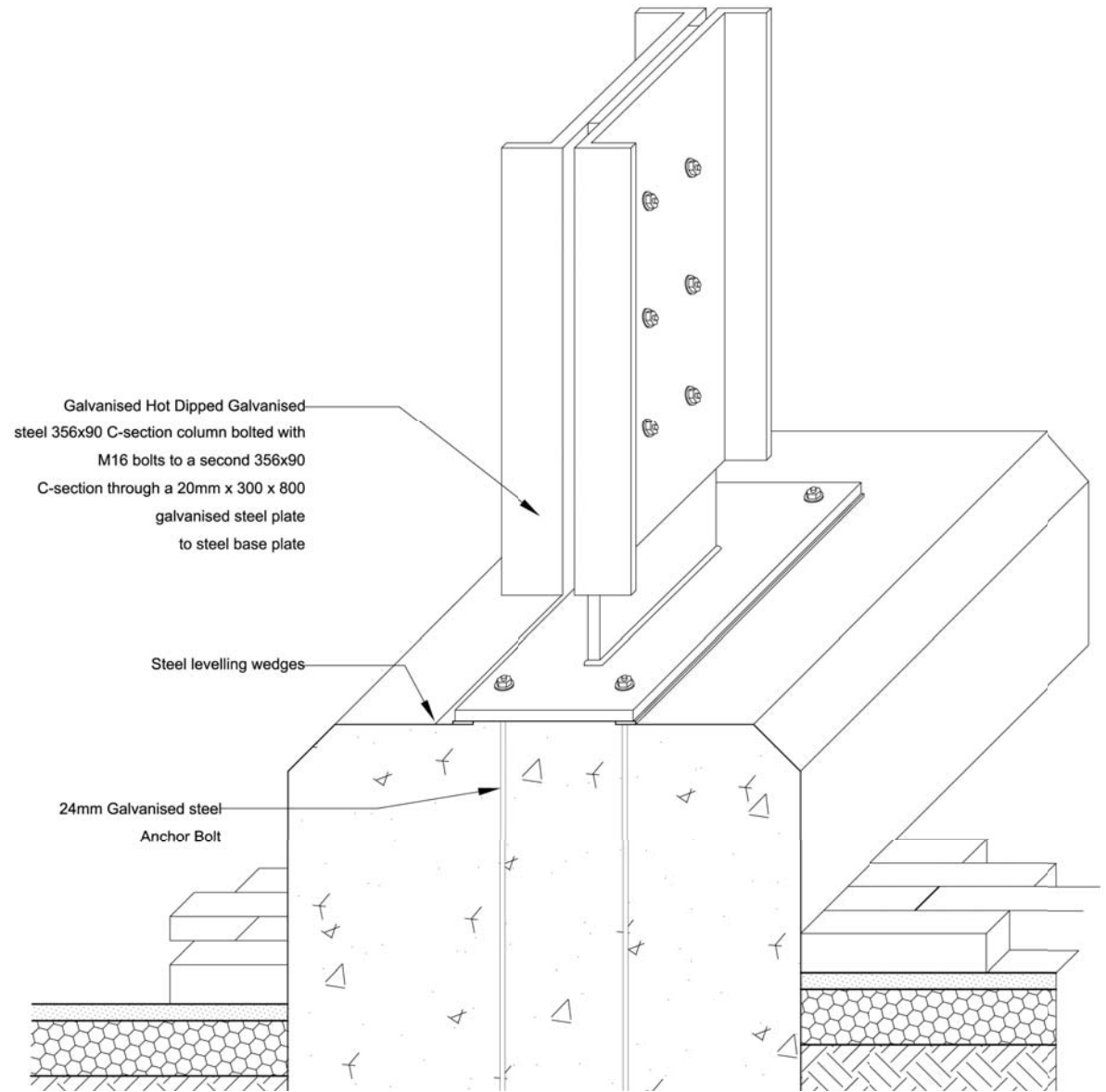


Fig.202.(By Author) Detail G

Section through Pump Room

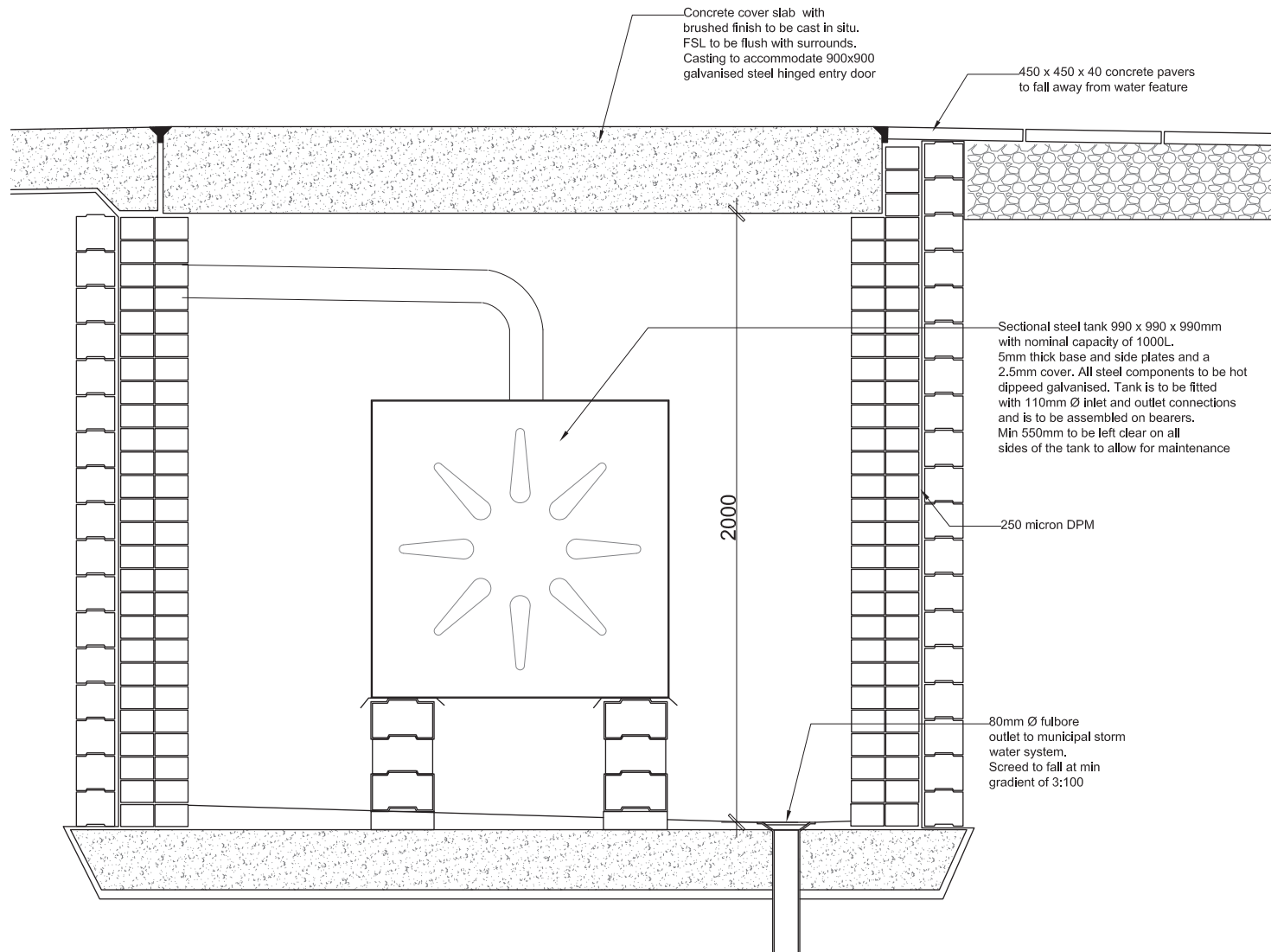


Fig.203.(By Author) Section through pump room

Plan of water feature

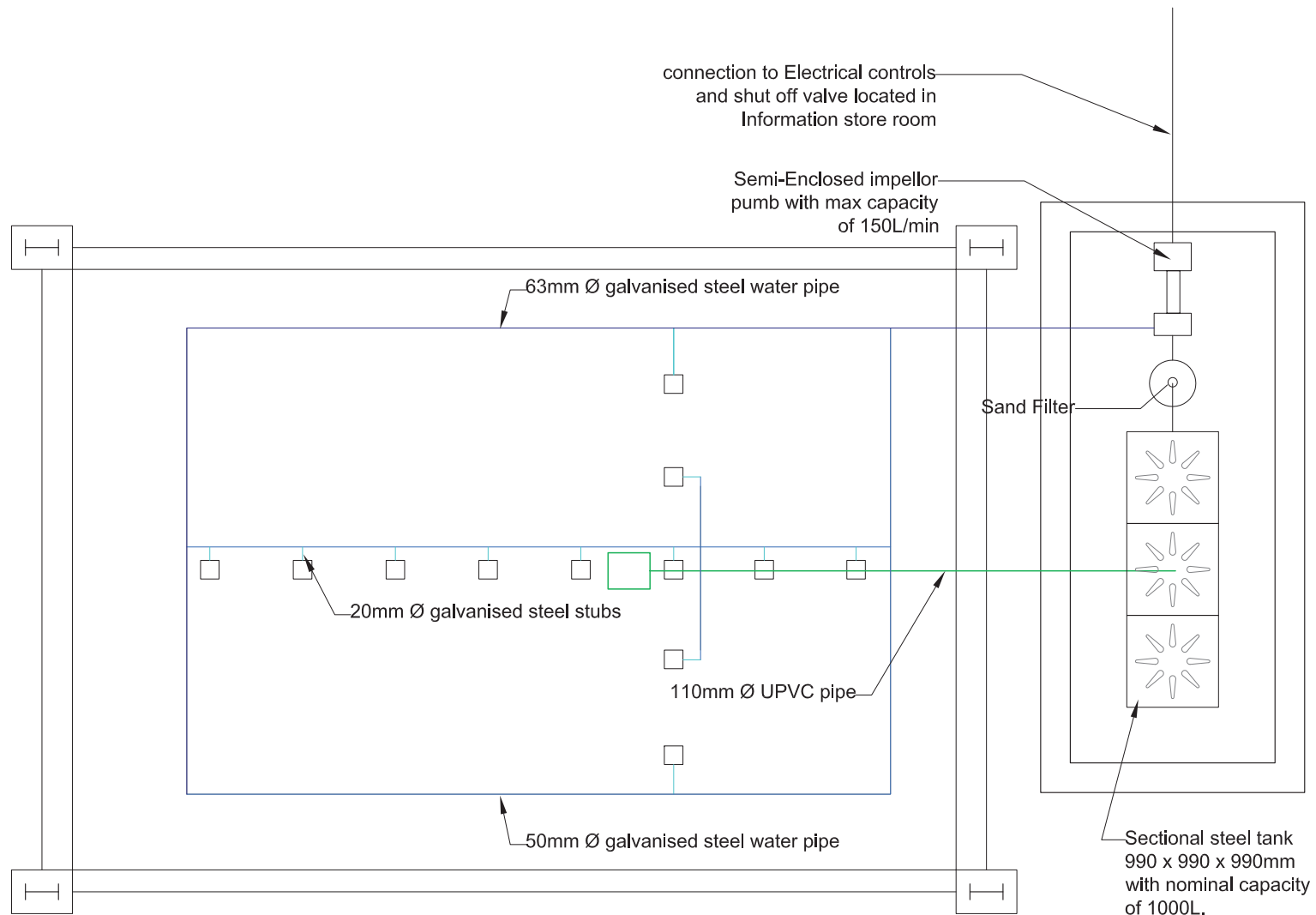


Fig.204.(By Author) Plan of water feature

Section through water feature

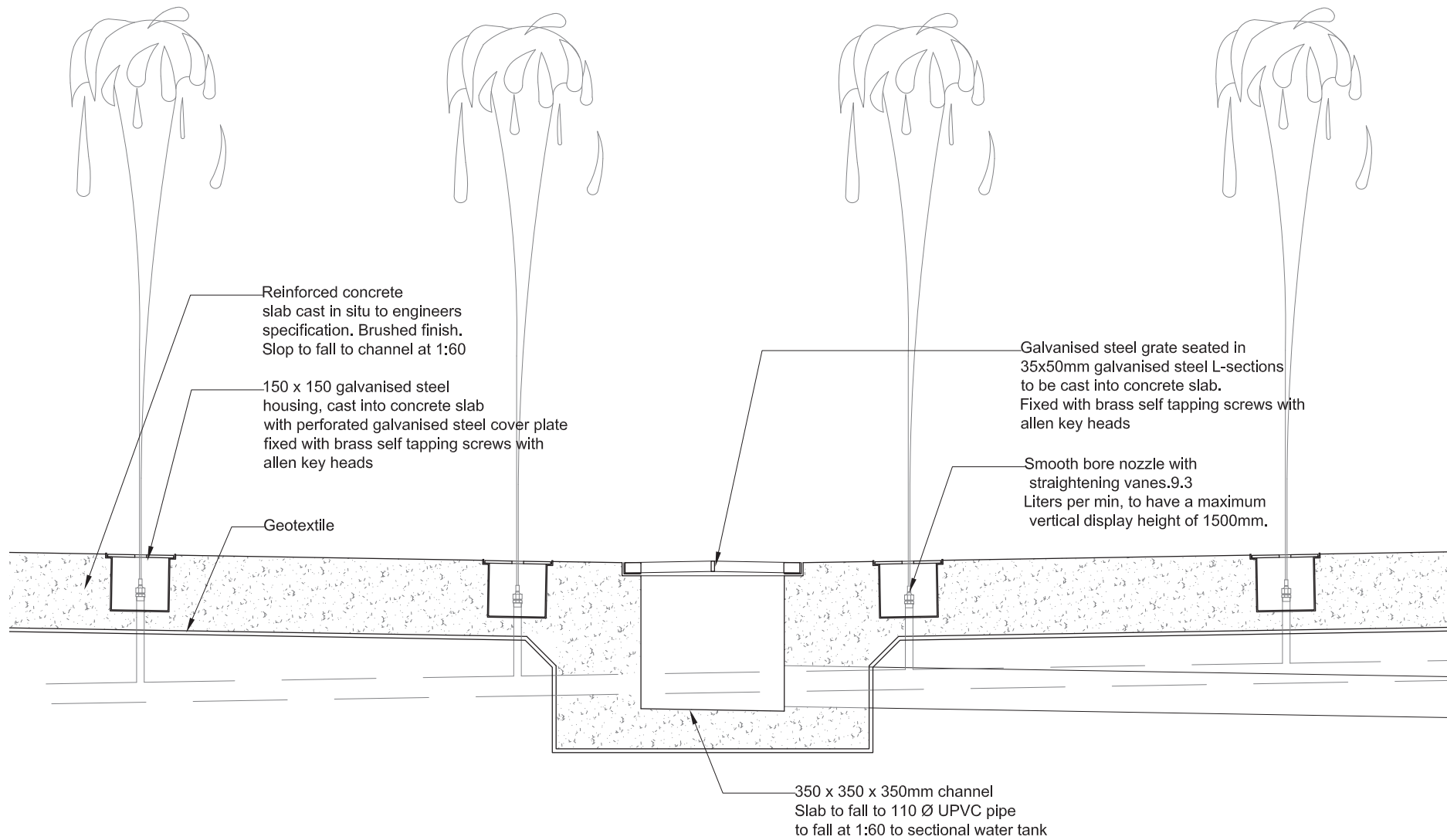


Fig.205.(By Author) Section through water feature

3D view of column in sacred space

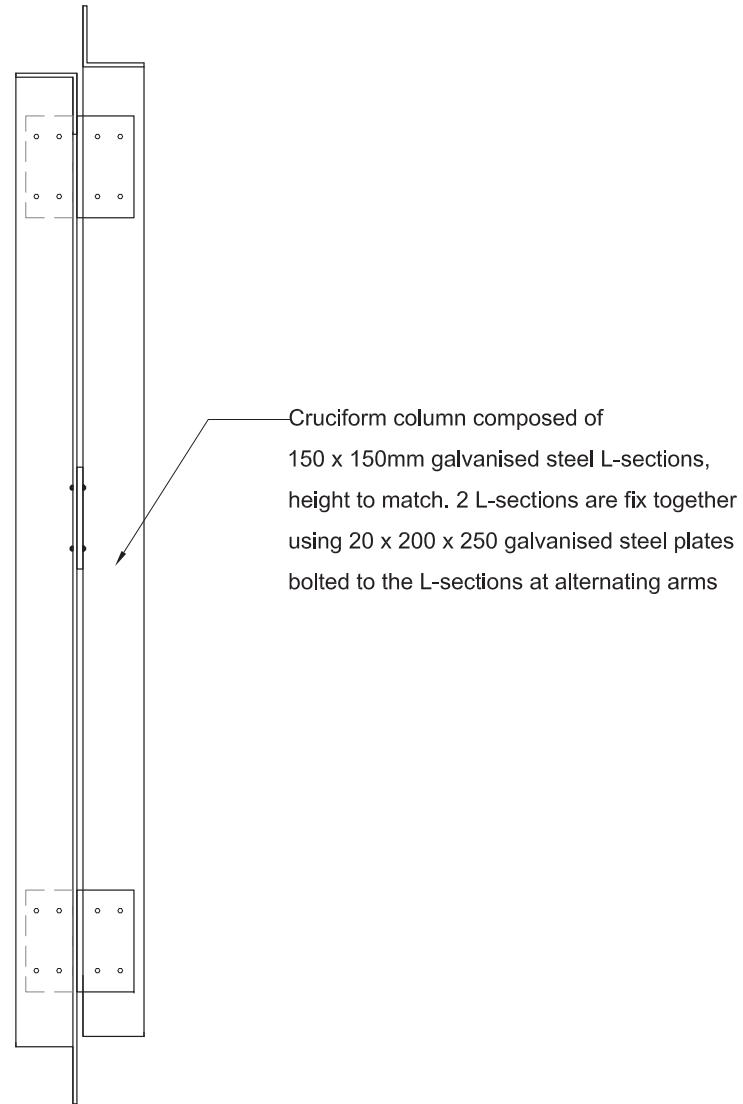


Fig.206.(By Author) 3D view of column in sacred space



Conclusion

This thesis set out to examine the potential of a church as a catalytic nodal public building and its potential to serve and uplift its community through both secular and religious functions. The design sought to achieve architecture and urban place making, that better interprets the social role of the church.

The proposal was set in Mamelodi East where the lack of urban fabric, services and infrastructure were the main design generators. The design created a new public edge condition which increased the interface between the Church and its community, ultimately such that the community becomes Church through this interaction.

The functions and spatial planning facilitate a church which is multi-functional and is able to serve and adapt to the changing needs of the local people. The scale and language of the intervention are able to both communicate an architecture which becomes a landmark and a physical expression of possibility while still being able to identify with the scale and urban fabric as it is.

This thesis is not a conclusive or final study of the area. Further study of the services and the many churches in Mamelodi could be carried out and possibly achieving the agreement of Church bodies that would use such a space. There is a need for more information into the ZCC and their spatial needs and practices; however the author doubts that such a guarded sect would partner with other Churches under any circumstances. Detailed exploration into such a housing proposal and production processes could be undertaken.



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