

NEWTOWN URBAN SCHOOL

RE-CONCEPTUALISING 21ST CENTURY PUBLIC EDUCATION IN THE URBAN CONTEXT

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This document is submitted in partial fulfilment for the degree: Master of Architecture (Professional) at the University of the Witwatersrand, Johannesburg, South Africa, in the year 2012.

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First and foremost I would like to thank my mother, Nomatempile Jali. Though only a cleaner at Wits, she has inspired me to pursue my dream of following the route called education, wherever it may lead. Thank you! Enkosi MaJuleka, MaJali!!!

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Dedications

This document is dedicated to the youth of South Africa, and the continent at large... Aluta Continua!

Also dedicated to my wonderful family: (AmaJuleka nooHlathi)

AmaJuqu: ooNgqiza, Mlibati, Matala Nkosi, Xabanis'abantu belungisa, Mavela.
ooSigwamba sentangu, zibutha kaNdakandaka, ooMbotho, Juleka!!!

AmaMfene: ooHlathi, Lisa, Jambase, Ntsilani, hlangomveliweni, Canzi, uMsuthu, Sanzanza!!!

Enkosi!

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01 ESSAY



NEWTOWN URBAN SCHOOL

Re-conceptualising 21st century Public
Education in the Urban Context

ABSTRACT

Urbanisation is a social phenomenon that is experienced in many cities all over the world. In Johannesburg, millions of people migrate into the city daily with hope for a better life, improved living conditions, work opportunities, sufficient public resources and facilities. The city is under pressure to provide adequate public resources to cope with the high influx of people moving into the city. As a result many resources and facilities, especially in the education sector, have experienced a decline in the quality of education and appropriate spaces for learning in the city.

In trying to respond to the inclining population of the city, urban schools have been established in the Johannesburg. Urban schools are faced with many challenges such as: over-crowding, inadequate spaces for teaching and learning, lack of spaces for extracurricular activities and recreation, thus resulting in most learners performing poorly in their schooling careers. In most cases urban schools occupy old office buildings, which were not designed for the purpose of nurturing a young mind through education and recreation. These buildings serve as part of the problem with education and educating in the city. These buildings offer poor light quality, ventilation, and inadequate spaces critical for a well-functioning school and engaging with inquisitive young minds.

The 21st century also presents a lot of opportunities and challenges for public education. The current South African public education system is still based on the early 19th century educational model, which was conceived and

designed for the success of colonisation. Fix the next sentence about today... Though, the OBE system was recently introduced, but that hasn't had much of an impact on the built environment of schools as it mainly continued using the old schools.

Through re-conceptualising spatial environments that evoke the students' engagement, enthusiasm and performance, the urban public school has the potential to make education more appealing and exciting to Johannesburg urban youth.

INTRODUCTION

In order to better understand the current results (fruits) of the South African education system, it is important and necessary to start by trying the roots and origins of public education in general and the South African urban public school design typology in particular.

The South African education system is made up of three different types of schools, namely: the independent or private schools; the public or government schools, and Model C or semi-government schools. The private schools are much more expensive than the public schools – sometimes up to 10 times more – and they offer much better and higher standards of education.

Many private schools were established based on religious (Christian, Jewish, etc) principles and a core ethos has been to provide learners with a spiritual foundation that will complement their academic and physical accomplishments. Some private schools were found on ethnic and cultural principles, such as the German schools. Private schools normally have better infrastructure, a large selection of extra-curricular activities and have state-of-the-art facilities.

Public schools are completely dependent on the government for funding and their other supplies. Education standards vary significantly in these schools as it also depends on how well each province administers its budget, the legacy of apartheid education policies and school building typologies. The racially discriminatory apartheid government which oppressed black people while privileging whites from 1948 until 1994, made sure that black, coloured and Indian children received inferior education. Schools were separated according to which race a learner belonged. The national average for public schools classrooms is about 1:30 and sometimes much bigger than this as overcrowding is still a big problem, whereas private schools have a learner to teacher ratio of about 1:15 with an assistant.

Learners who attended at white schools were given quality education but black, coloured and Indian learners received a very poor education under the apartheid's Bantu education policy, which was meant to educate these learners to become servants and manual labourers of white people.

The apartheid government believed that this was all black learners should ever hope to achieve. One of the chief architects of the Bantu Education policy, a minister in the apartheid government once said about Bantu Education:

“There is no place for the Bantu in the European community above the level of certain forms of labour ... What is the use of teaching the Bantu child mathematics when it cannot use it in practice? That is quite absurd. Education must train people in accordance With their opportunities in life, according to the sphere in which they live.” Hendrik Verwoerd (Minister of Native Affairs 1950-58 & Prime Minister 1958-66)

JOHANNESBURG INNER-CITY SCHOOLS BACKGROUND

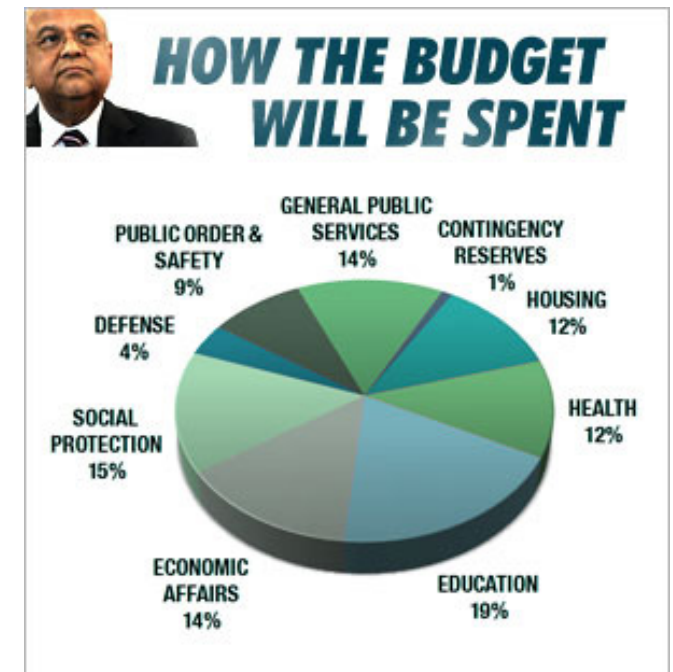


(Source: DoE Annual Report 2011)

The fall of the Apartheid regime and the eventual dawn of democracy brought a lot of changes in South Africa. Some of the many changes that took place were regarding education and urbanisation. People started moving to places in the inner-city that were previously classified as 'whites only'. People started occupying what was left of the buildings that had been used as office blocks. After 1994, tertiary institutions that had been previously been reserved for white learners started opening their doors to all population groups. This led to a big increase in the numbers of students who had been starved of acquiring higher education by the repressive regime. As business continued moving out of the city, schools started mushrooming in the empty office blocks, catering for black learners who were also looking for an alternative to the dysfunctional apartheid schools in the townships.

These inner-city schools were and still are facing, many challenges such as overcrowding, cramped spaces, lack of communal facilities for socialising, sports, gathering space, informal learning spaces, access to computers, proper food, sport and cultural activities. Since the buildings currently used as schools were not designed for this purpose, this results in the creation of an environment that does not stimulate the senses. There is poor light quality, ventilation and other suitable design elements for a well-functioning school.

The government has been pouring billions of rands into the education system, trying to deal with the challenges it's currently faced with an emphasis to redress the inequalities of the past. In the 2012/13 budget speech, finance minister Pravin Gordhan placed more than R200 billion towards education, giving it the biggest slice of the social services cake, about 19% of the total budget; but even this has not done much to change the standard and quality of education in South Africa in general and the inner-city in particular. There is an opportunity to test the appropriate use of space in address some of the challenges in urban schools.



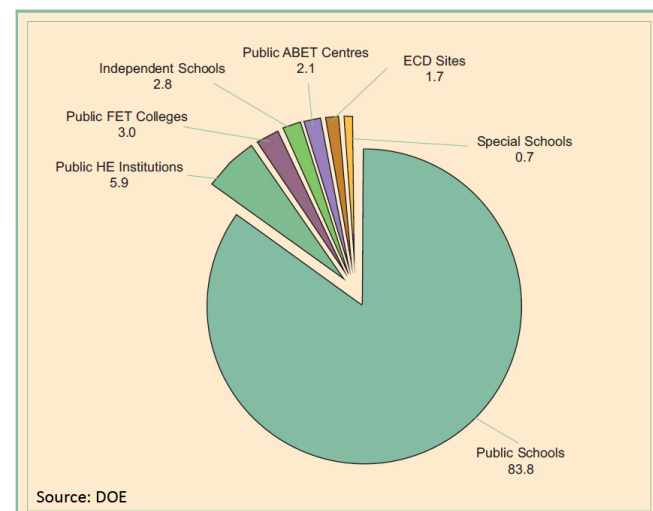
(Source: Fin24.com)

SOUTH AFRICAN EDUCATION SYSTEM

Formal education in South Africa is organised into three levels.

The first one is General Education, which ranges from Grade R to Grade 9, including Adult Basic Education and Training (ABET). At this level, schooling is compulsory for all kids at the school going age group. The second level is Further Education and Training, (FET) which ranges from Grade 10 to Grade 12. The FET level covers formal schooling, technical education and post-school education and training. Then the last level of formal education is Higher Education and Training, which offers the highest level of education and is also known as Tertiary Education. To get into this highest level, one has to pass Grade 12 (matric) with a 'bachelor's pass'.

The Higher Education level comprises of a range of degrees, diplomas and certificates.

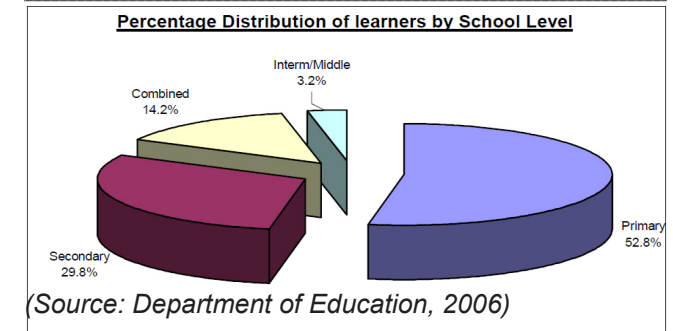


This level is made up of three types of institutions: The traditional research-focused universities such as Wits and UCT, the universities of technology, and the new 'comprehensive' universities, like UJ and UNISA, that are a combination of academic and vocational-oriented education. At this level we also find private Higher Education Specialist colleges and universities like AFDA and Monash University.

Matriculation is commonly used as a tool to measure the quality and effectiveness of the first two levels of education, the primary and secondary, so that learners can get to the last level, complete it and become professional individuals who can contribute to society and play a positive role in the development of the South African economy.

Looking at and tracking a grade 1 class that started school in the year 2000 and matriculated in 2011, we observe that the enrolment is generally very high in grade 1, and shows a steady decline in the proportion of learners as grade level increases. From grade 10 to grade 11, there is a sudden decline in enrolments. The situation gets even worse from grade 11 to grade 12 as less than 50% of the number of learners who start grade 1 eventually make it to grade 12. In 2011, about 500 000 learners sat for the final exams, and only 70.2% of learners passed and 24.3% of them qualified for degree study, from the public education system. This shows us that of 1.1 million enthusiastic learners that started grade 1 in the year 2001, only a third, about 33% will pass matric, and just about 11% will qualify to study towards a degree.

BAND	SCHOOL GRADES	NQF LEVEL	QUALIFICATIONS
HIGHER		8	Doctor's degree
		7	Master's degree
			Honours degree
			Postgraduate diploma
		6	General first degree
			Professional first degree postgraduate
			Bachelor's degree
		5	First diploma
			Higher certificate
			Certificate
FURTHER	12	4	Diplomas
	11	3	Certificates
	10	2	
GENERAL	9	1	Grade 9 / Adult Basic Education and Training level 4
	8		
	7		
	6		
	5		
	4		
	3		
	2		
	1		
	R		





Mbowa College, a high school and FET college occupying an office building in the Johannesburg CBD



Falcon Business Institute, a high school and FET college also occupying an office building.



Basa Tutorial Institute near Park Station in the Johannesburg CBD. Entrance from the street.



Playing on the street pavement, because of lack of facilities outside Basa Tutorial Institute in the CBD.



Play area on the south facing courtyard at Progressive Primary School in Braamfontein.



Social space outside Johannesburg Polytech Institute, a school near Park Station.



Freedom College, Johannesburg CBD



School Hall



Library



Typical classroom, 'sit down & listen'



Computer Lab



Dining area in a ground floor backyard space with insufficient ventilation



Single entrance to the school



Corridor used mainly for circulation



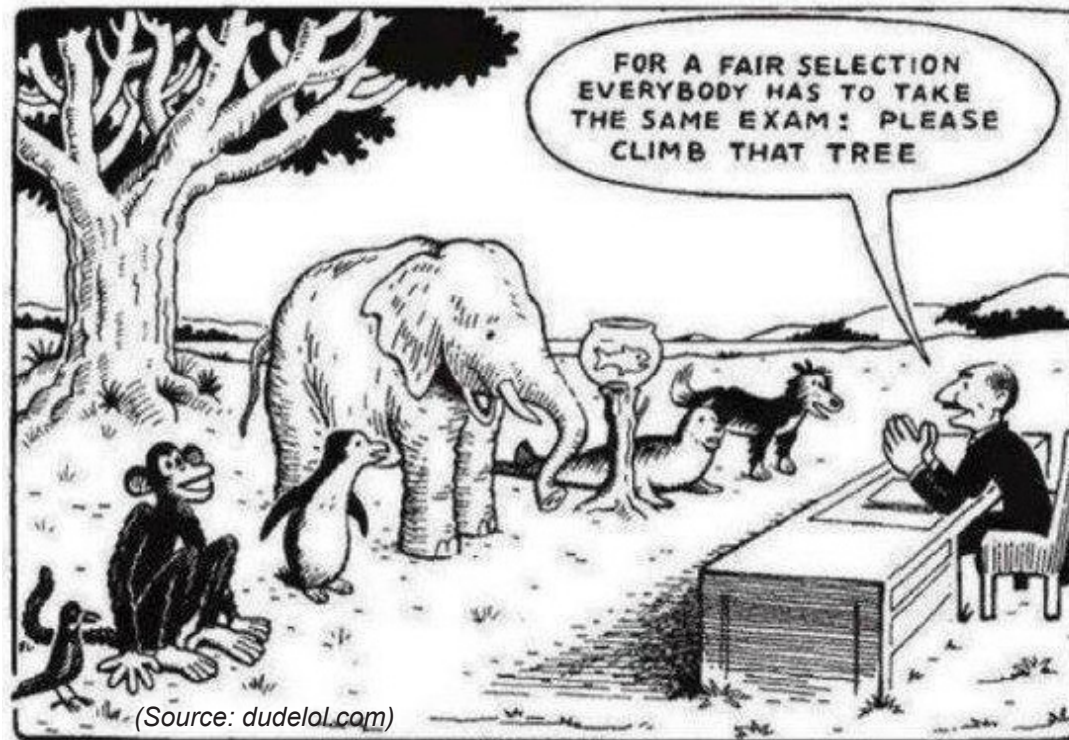
Johannesburg skyscrapers in the background

The sudden decline in numbers between grade 10 and grade 12 could be attributed to quite a number of reasons such as learners losing interest in the education system and dropping out, some perhaps pursuing other means of academic advancement such as enrolling at an FET college. Some could just be failing or rather the public education failing them. The system could be failing them due to a number of challenges that it is faced with, some of which have already been discussed.

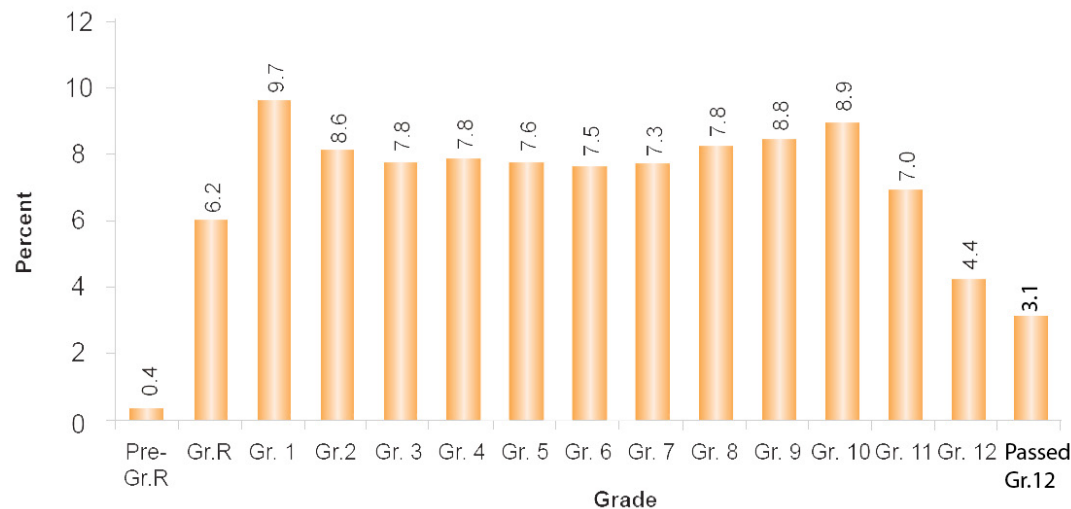
The learning environment and the school buildings could also be one of the major reasons for the sudden drop in learners enrolled in the public education system. The environment is important in the learners' ability to learn.

The quality of space is very important and should be conducive and appropriate for learning to take place. Schools are supposed to impart knowledge to learners and prepare them to play a positive role in the economy. To better understand how the current model of public education got to where it is now, it would be beneficial to also understand the depth and nature of the roots that are producing these results.

Currently the drop-out rate at South African Universities is alarming. The National Plan for Higher Education (NPHE) estimates the graduation rate to be about 15%, making it one of the lowest in the world. The quality of students that high schools produce is directly proportional to these results.



"Everybody is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid." Albert Einstein



(Source: Department of Education Report, 2011)

PRE-COLONIAL EDUCATION IN SOUTH AFRICA

"The difference between school and life is that, in school you're taught a lesson and then given a test. In life, you're given a test that teaches you a lesson." Tom Bodett



(Source: africaboundadventures.com)

The history of education in South Africa dates back to long before colonization. Close knit families and the whole community at large were responsible for imparting knowledge to the children orally and through their ACTIVE participation in the cultural activities and everyday working of the tribal life. Children were taught the importance of cultural, social and religious values. They were taught practical skills to help them as they grew older, like agricultural and survival skills, in a changing environment. The girls were taught cooking, weaving and pottery, while boys were taught hunting, fishing and military skills. This was mainly done while working side by side with their close-knit family and members of the community through modelling and oral discussions.

As part of their survival skills and intellectual training, they were taught about their environment, knowledge of the different plants and herbs, birds and animals. They were also taught their history, legends, poetry, proverbs and story-telling, usually by the elders in the tribe as they sat around the fire under the African sky. Sports and other recreational activities also played an important role in educating children. As boys were herding cattle, they would learn stick fighting, traditional dancing and other fun-filled activities.

When they have come of age, depending on which culture they came from, boys and in some cultures girls as well, would go to initiation school to mark the end of their childhood education and graduate as a young adult. Initiation ceremonies were held and in some cultures like the Xhosa and Sotho, are still amongst the most important rural ceremonies and element of educating the young people.

In the traditional African education system, education happened everywhere and at any given point in time. Educating young people was not outsourced; it was by the parents, the close-knit family of the whole community at large. Just like the religious practices, there was no specific day or days of the week for teaching and imparting knowledge. It was part of everyday life. Education was about fulfilling the needs of society and the training offered was not just for developing skills but to also promote the philosophy and spirit of UBUNTU (umntu, ngumuntu, ngabantu – a person is a person because of other people...

"I am what I am because of who we all are."

This meant education was promoting a sense of belonging and that of serving the community.

Education was free and a fun-filled part of people's daily lives, but sometimes challenging and difficult to prepare children for the hardships of life. It would happen under a tree, in the open fields, around the fire under the African night sky, in the garden, inside the initiation school hut and everywhere else where there was an opportunity to learn something.



Ubuntu: "I am what I am because of who we all are." (Source: ezakwantu.com)

Learning happened spontaneously through imitation/modelling, observation and experiences from tasks and daily activities. There was no entry level or exit level to this kind of learning as is now happening in schools. Knowledge was passed down through traditional songs, poems, folklore and other oral stories and customs by the elders.

Overtime, the people of the Africans were colonised and a new model for educating young people was introduced.



Venda's initiation school, girls performing Domba/ python dance & taught about the institutions and responsibilities of motherhood, and marriage. Barbara (Source: ezakwantu.com Tyrrell & Peter Jurgens)



Bushman teaching a child how to use a bow and arrow (Source: art.com)



Bushmen dancing around the fire, other villagers cheering and learning (Source: art.com)

UMkhosi womhlanga: The Annual Zulu Reed dance, used for sex education & preserving women's virginity & morality (Source: KZN office of the premier)



for sex education & preserving women's

WESTERN EDUCATION SCHOOL BUILDING TYPOLOGY

Frank Molteno says that the first formal school in Southern Africa was opened in 1658 in the Cape as part of the social relations introduced with colonialism. This school was for slaves working for the Dutch East India Company. The objectives for opening this particular school were to prepare the slaves to better serve their masters through labouring and so they could understand their master's language. (Kallaway, 1984:45) The school later became part of the slave lodge building which has left an un-removable impact on many aspects of South African life centuries after the abolition of slavery.

According to Kallaway (1984:8), the schooling of the African people which was carried out by missionaries and by agents of colonial regime, was all part of the process of colonization.

Schooling was used as a tool so that the indigenous people could co-operate and therefore make it easier for the colonizers to control them.

This system was met with a lot of resistance as it came to undermine a system that had sustained the society for generations over thousands of years. The new system started creating a bad-image of ignorance and incompetence for those people who were resisting it, who did not want to participate in it, those who did not want their children to attend their schools, and for those who were failing in the colonizers' model of schooling.

On the other hand, those who cherished and adopted the new system of educating young

people, often despised the indigenous model, they hated their own culture and traditions in favour of the colonizers' model and way of life. To the 'converts', the introduction of schools made them undecided about their links to their forefathers way of life and their entire social background.

These indecisions and outright confusion marked the beginning of a generation losing their own identity and self-awareness. Though the 'converts' were quick to adopt the new system and discard their own, the purpose of this new system was in no way sincere. It was not meant to benefit the indigenous people in any way really. The objectives were to control and create literate servants who have adopted the colonizers' industrious ways and the Christian religion, at the expense of their own way of life. Instead of being used to empower, it was meant to disempower.

Sir George Grey, a Governor of the Cape in the mid 19th century best describes their objectives in a statement he made in parliament:

"If we leave the natives beyond our border, ignorant barbarians, they will remain a race of troublesome marauders. We should try to make them a part of ourselves, with a common faith and common interests, useful servants, consumers of our goods, contributors to our revenue.

Therefore, I propose that we make on reuniting efforts to raise our natives in Christianity and civilization, by establishing among them missions connected with industrial schools. The native races beyond our boundary, influenced by our missionaries, instructions in our schools, benefitting by our trade, would not make wars on our frontiers."
(Christie 1989:37) adopted from (Rose and Tunmer 1975:205)



The Cape slave lodge, built in 1679 (Source: Patric Taric Mellet)

“The colonized people of Southern Africa were not simply conquered in a military sense, did not lose only their political independence, and were not just drawn into new systems of social and economic life as urban dwellers or wage labour. Though all the aspects of the process of colonization have great importance, the key aspect to be noted here is that it also entailed cultural and ideological transformation, in which the schools were major agents.” (Kallaway, 1984:8)

School formed an integral part of the process aimed at incorporating the African people into the Western civilisation structures and their emergency capitalist system. From the early period in schooling in South Africa, we observe that schooling is connected to or conducted by the church inside or near church buildings. The position that the indigenous people are playing was that of unskilled labourers serving their colonial masters with schools meant to create social inequality. These were the foundations of what was to come to be known as Bantu Education.

The South African model of education and its policies according to Kallaway (1984:16) was influenced by the Dutch system for guidance and dealing with cultural and religious differences in public education.

The educational policies were “simply a copy of European models with little or no adaptation or curriculum reform to accommodate local circumstances”. The architecture of these early schools was also based on the same foreign principles. It would therefore, be beneficial to understand some aspects in the history of Western education as it relates to the development of the South African public school building typology, and the impact of industrialization on public schooling.



A 'Native' primary school near Burgersdorp, next to a missionary station (Source, Kallaway 1984:48)



A rural 'Native' school. (Source, Kallaway 1984:48)



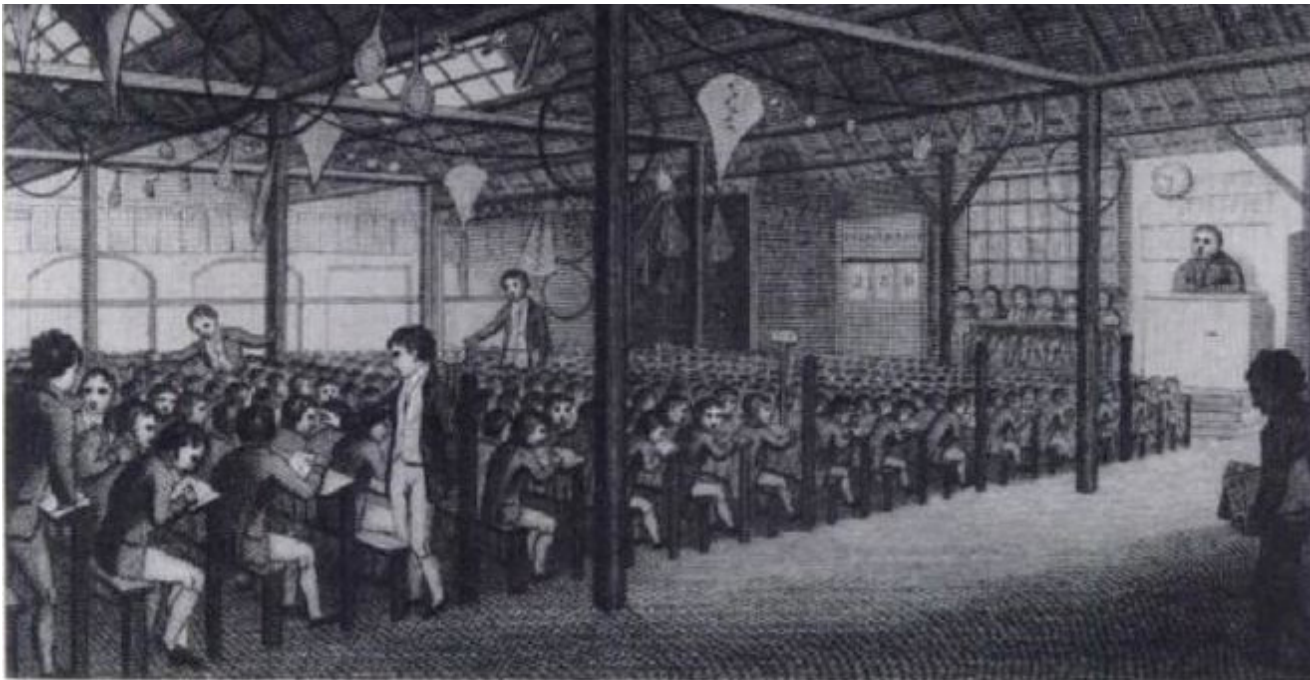
Churches and schools located side by side as seen in The Catholic mission station at Mount Frere, Transkei (Source, Kallaway 1984:49)

According to Professor Ken Robinson, an English Educationist (PhD) TED.com conference in 2009, he said that there were no public systems of education in the Western world until the 19th century. He says, this system of education came into being to meet the needs of industrialisation. From the beginning, the system was designed in such a way that the most useful subjects during the industrial revolution, like maths and science, were rated to be more valuable than all the other subjects.

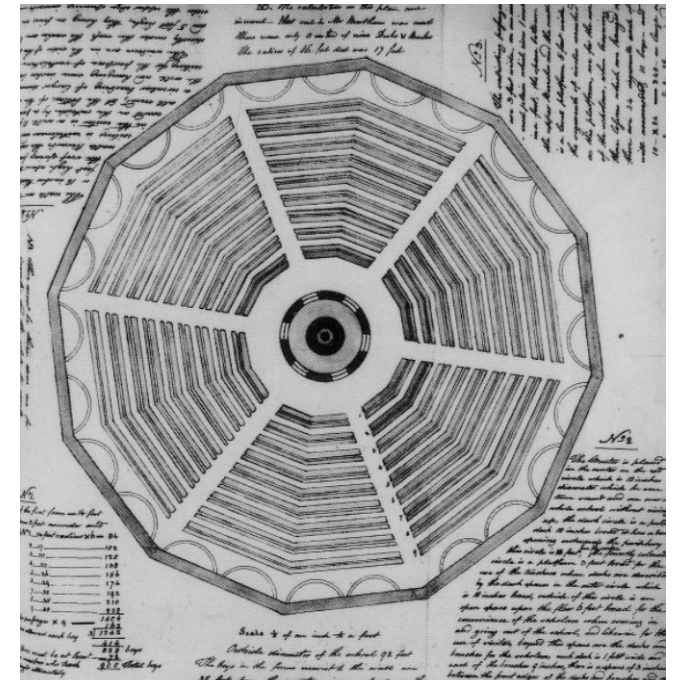
Subjects like music, art and other similar subjects were relegated below the other more useful areas of study at the time. Academic ability became the pretext of human intelligence, even though human intelligence comes in many various ways, of which academic is just one of those abilities. The whole system was and still is a prolonged process for university entrance. Stigma was used against all other fields of study that were not useful in the factories of industrialists like Andrew Carnegie.

Schools were and somehow still are a place for indoctrination and conformity, organised into factory lines, educating children in batches, using standardisation in curricula and testing, without consideration for each learner's individual ability.

The original church-based school building typologies in Europe were formed and made up of learners surrounding, and by default being submissive to their teacher.



Lancaster's 1811 schoolroom, Borough Road. (Source: Markus, 1993:57)



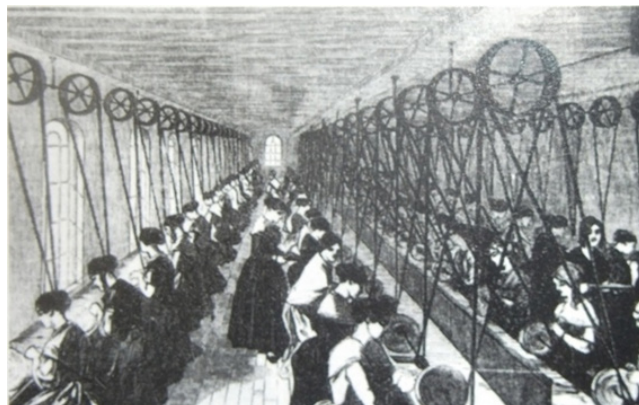
Bentham's twelve sided "chestomathic monitorial school (1815) (Source: Markus, 1993:69)

One of the earliest models for schools linking education and the production/ manufacturing industry was Andrew Yarranton's visionary idea of a spinning school in 1677 for a rural poor community, employing children between the ages of 6 to nine years in clothing production.

Teaching was conducted in a large work-room with a box-like pulpit in the middle. The mistress would sit in the middle of the school in the little box pulpit and around the edges would be about 200 children, seated on benches. (Markus, 1993:8). This form of teaching was designed to monitor the learners. Obedience and discipline were drilled into the young learners sometimes using harsh, strict and painful means. This type of school was usually grouped into a cluster of 3 or 4 schools complimenting each other's lessons. This type of scheme shows some key elements of the industrial revolution school typology.

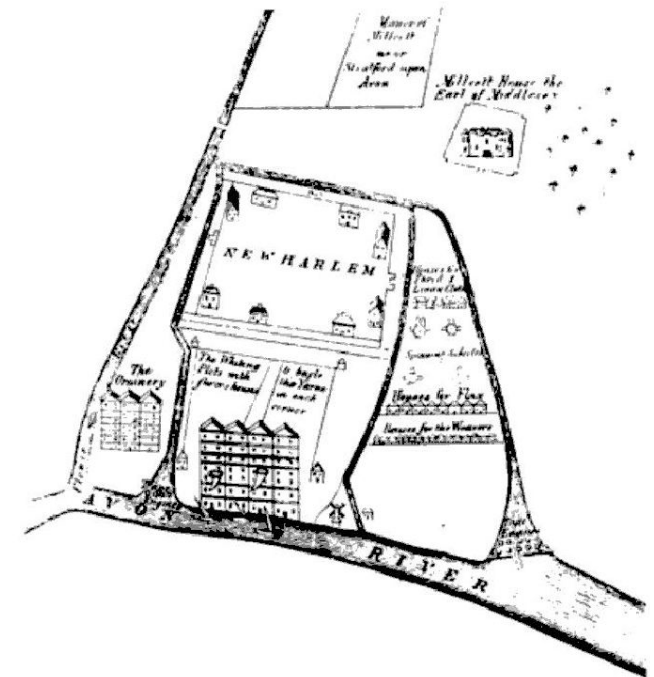


During the industrial revolution, schools were a strict place of power, control and discipline. Robert Owen, a Welsh social reformer, played a pivotal role in the design of orderly industrial communities. Previously, children would have to be working by age six and school had to teach children so they could increase productivity in the work place. Owen then rose the minimum age for working from six to ten years, so that by the time kids started working, their habits and character would have been moulded. His philosophy was that a man's character is not made by him but for him, influenced by circumstances he had no control over.



Key Elements in the Factory School

1. Inverted theatre - perfect visibility for surveillance, the stage now being the domain of the observer, the auditorium of the observed
2. Discipline - its source and its place of execution being hidden
3. Silence
4. Productive work
5. Hierachy - mistress, punitive woman, children
6. Religious symbolism - the pulpit



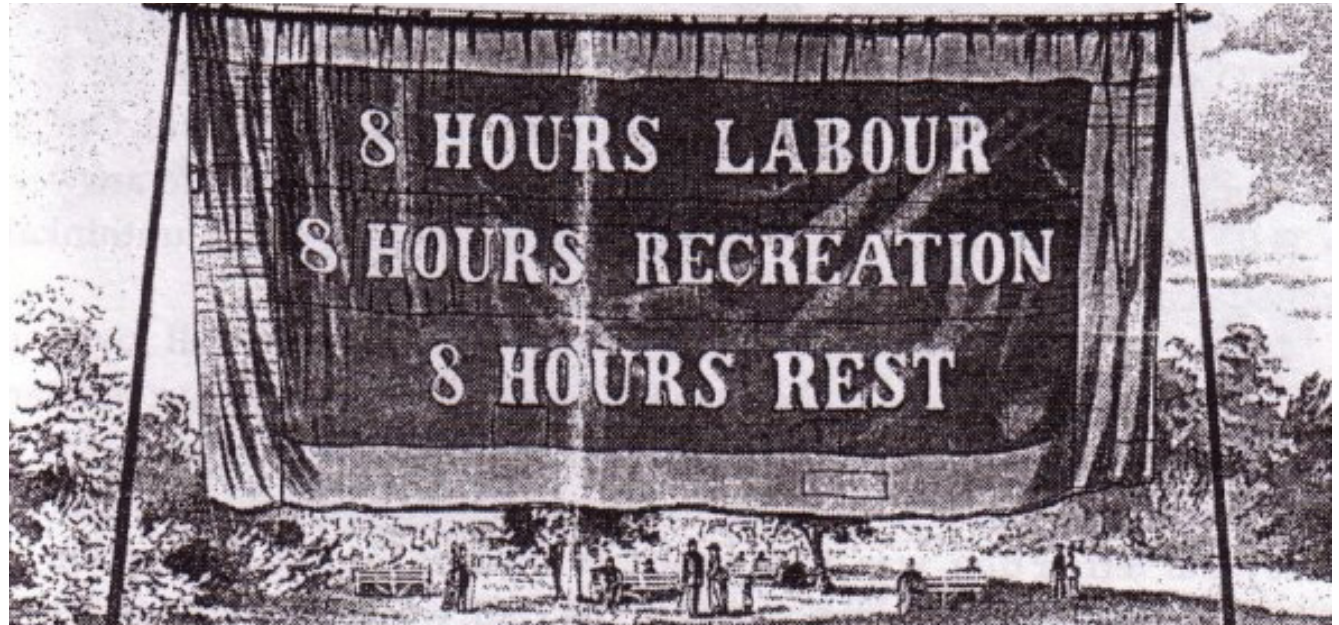
Andrew Tarranton's concept - New Harlem Factory School (1677)

(Above pictures) 19th century schools were expected to operate in a manner that would help produce diligent, obedient workers for the new industrial system. (Source: Tozer, Violas, Senese, 1995:68)

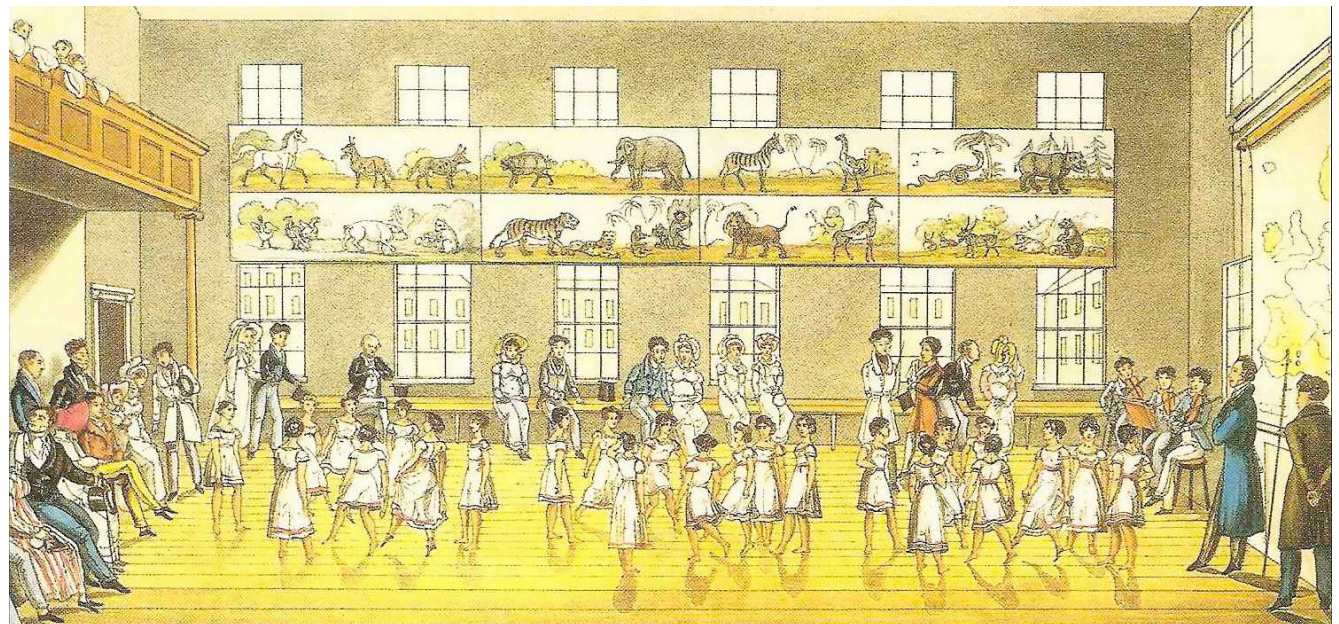
Owen concluded that for the right formation of a man's character, he'd have to be placed under the correct form of physical, moral and social influences from an early age. He believed that by changing the man, he would be re-shaping the social structure. (Marcus 1993:69)

This led to Owen opening a school for the formation of character. Before then, industrial schools were literally prison-like, designed in a circular manner with learners distributed around a central surveillance area, and he decided to come up with more traditional, rectangular classrooms that had a supervisor in front of each classroom. The playground started playing an important role in shaping the character of learners and he hoped it would also improve their productivity at school.

A multi-functional school program was introduced with classroom spaces that could also be used for ballroom dancing, singing and as a reading room. Alphabets and numbers were introduced and used rhythmically through play. Order, quietness and discipline became fundamental principles at the school. From the age of five, boys were drilled military exercise in the playgrounds. Everything in the school was still designed for central monitoring and surveillance. (Markus 1993:71)



Robert Owen's Model for a Balanced Life, used till today (Source: squidoo.com-robert-owen)



Robert Owen's school for the formation of charecter in New Lanark, Scotland (1809-13), a utopian community for cotton-mill workers. (Source: Markus, 1993:71)

THE DEVELOPMENT OF URBAN SCHOOLS

Urban schools came about in Britain and Germany as a result of some educators realising the need to educate poor children not just for their spiritual well-being, but also as a response to the unhealthy, overcrowded cities in which children were usually forced to work in from a young age. Before the mid to late 19th century, though schools existed, it was not compulsory for children to attend and most used other means of funding and not those from the government. As the government started funding schools, a need to instruct large schools within the urban areas became an urgent necessity (Dudek, 2000:11)

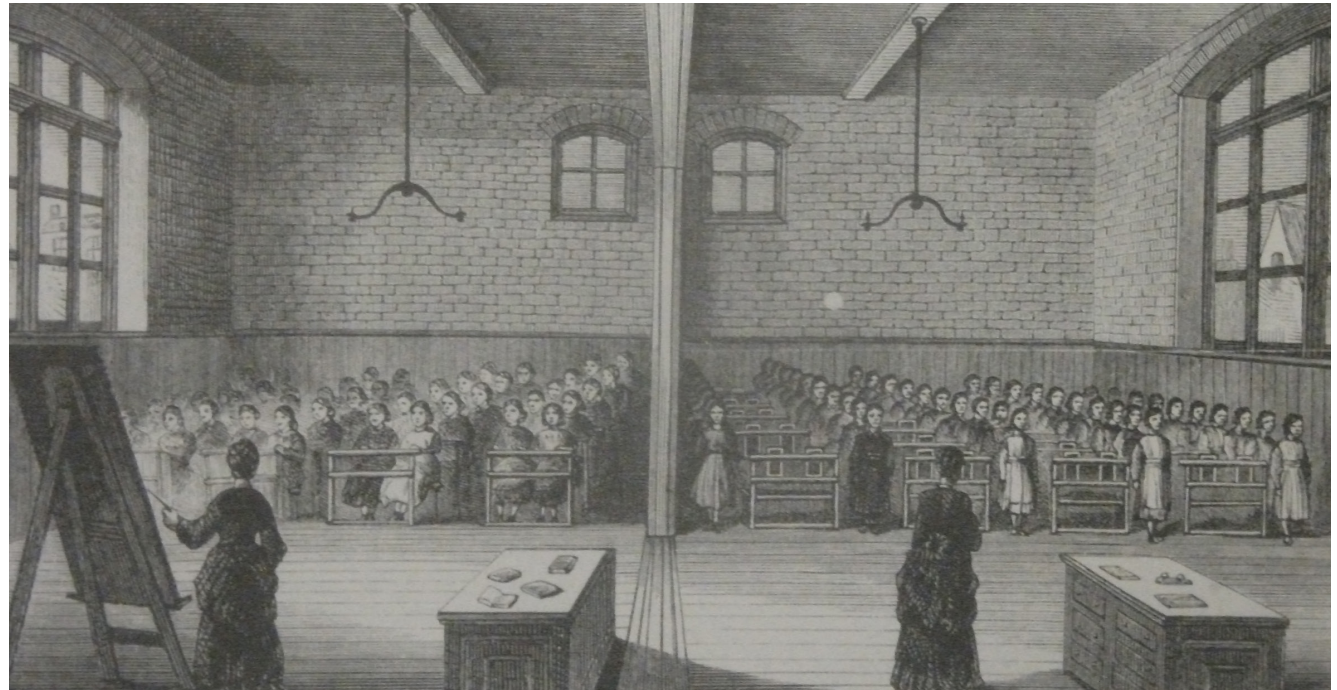
Each district and country had its own way of running their schooling system; there was no coherence in the educational needs of teachers, learners and the whole school environment. Most schools were either part of a church or a commercial institution, such as the factories, which normally concentrated on discipline. Correct moral teachings were given first priority and spaces for education, though necessary were seen as secondary. It's during this period that fundamental concepts for a well-functioning school were introduced; such as the importance of the interior environment, warming and ventilation, school furniture, light quality in the classroom and architectural style.

The overall shape of the schools was based on two key criteria: The layout of the classrooms and the number of pupils to be accommodated.

A leading architect for this typology of schools was E.R. Robson, who introduced the Prussian system of separate classrooms organised around a communal hall, whereas before then, school lessons had taken place within big single-volume communal hall spaces simultaneously for the whole school. (Dudek 2000:13)

Classrooms had been arranged with benches in rows with pupils sitting side by side in lines of 16, in an eighteen row deep arrangement. Robson felt this was too inflexible and he introduced the arrangement of classrooms accommodating five rows of double desks from front to back.

Circulation was much easier here for the master or supervisor to inspect the academic progress of each pupil. The learners could also leave their desks quite easy during the lesson. There was a generous space at the front for presentations, displaying work done and for general circulation. Secondly, the classroom sizes were based on a predetermined schedule of accommodation, with a favourable number of 40–60 pupils in each class, based on the number of learners each school teacher could comfortably service.



E.R. Robson's early classroom design layout with two desks for each teacher and a dividing curtain, a configuration reminiscent of more recent paired classroom layouts. (Source: Markus, 1993, 72)

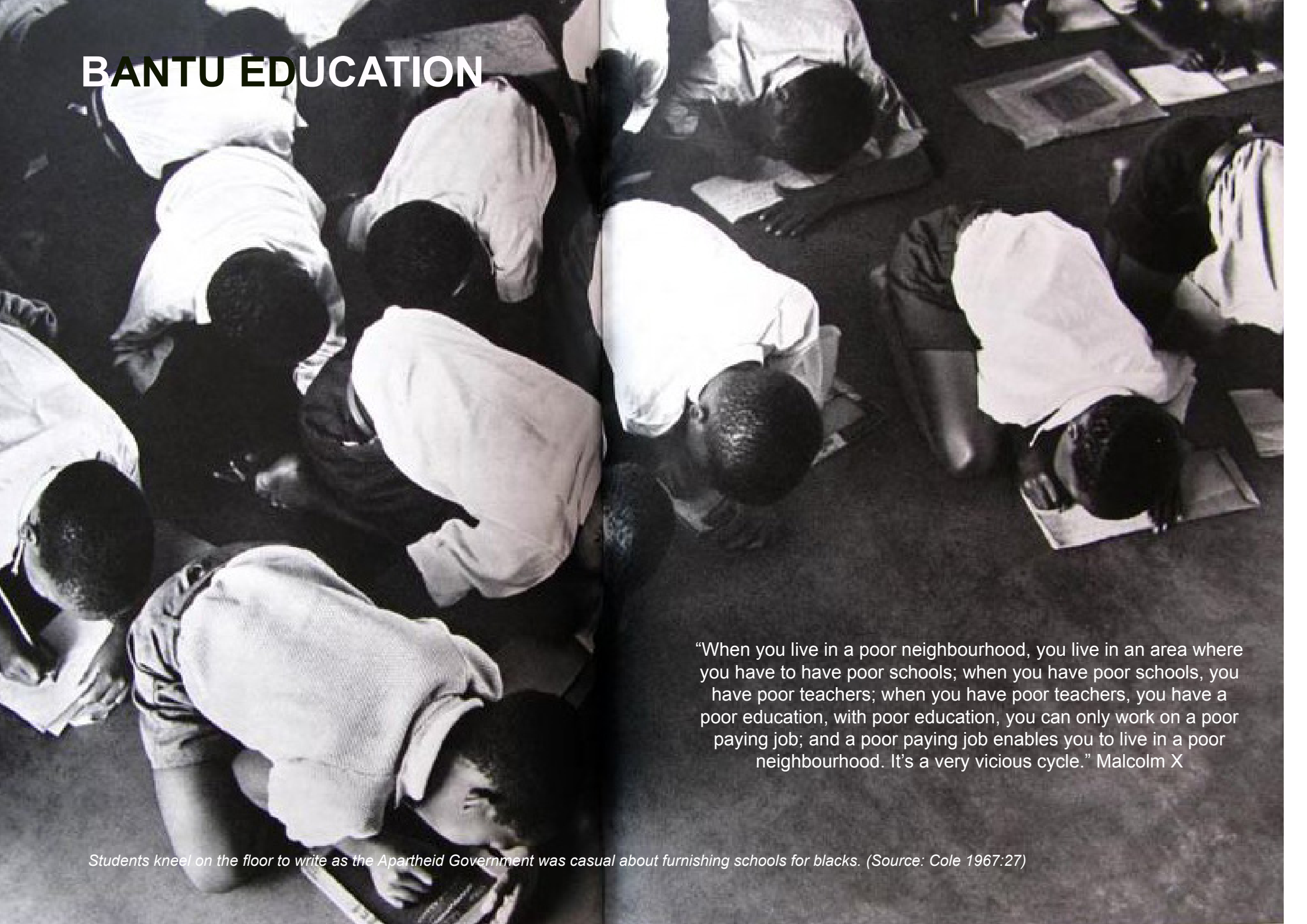
These school designs focused more on functionality instead of an architectural style, with the use of patterns and efficient circulation setting the form. These urban schools were three to four storeys high so they could accommodate as many children as they could onto a single site. Big chimney stacks on pitched roofs with gable ends and heavily buttressed brick walls created a recognisable architectural language. External play spaces were not pleasant though as they were usually overshadowed and sandwiched between the high school walls and the streets' boundary walls.

The environment inside the school was very uniform, resembling the factory floor, where most of the learners were destined to end up.

John Taylor Gatto, an author and a retired American school teacher with 30 years' experience states that towards the end of the 19th and around the beginning of the 20th century, the Rockefeller Foundation, a product of one powerful industrialist, John D. Rockefeller, was instrumental in creating public schools as they exist now in America. He says that the foundation advanced the idea of service to business and government as the primary goals of learning, especially in higher education, not teaching for the advancement of the whole society but for the benefit of the elite's big corporations.

Gatto further points out that the current compulsory public schooling system was the 'medicine' used to bring the entire American population into conformity with their plans, and that they wanted to keep young people from working, and in the education system until an advanced age, so that by that time the passion and enormous self-confidence in most learners would have faded and cooled down.

BANTU EDUCATION

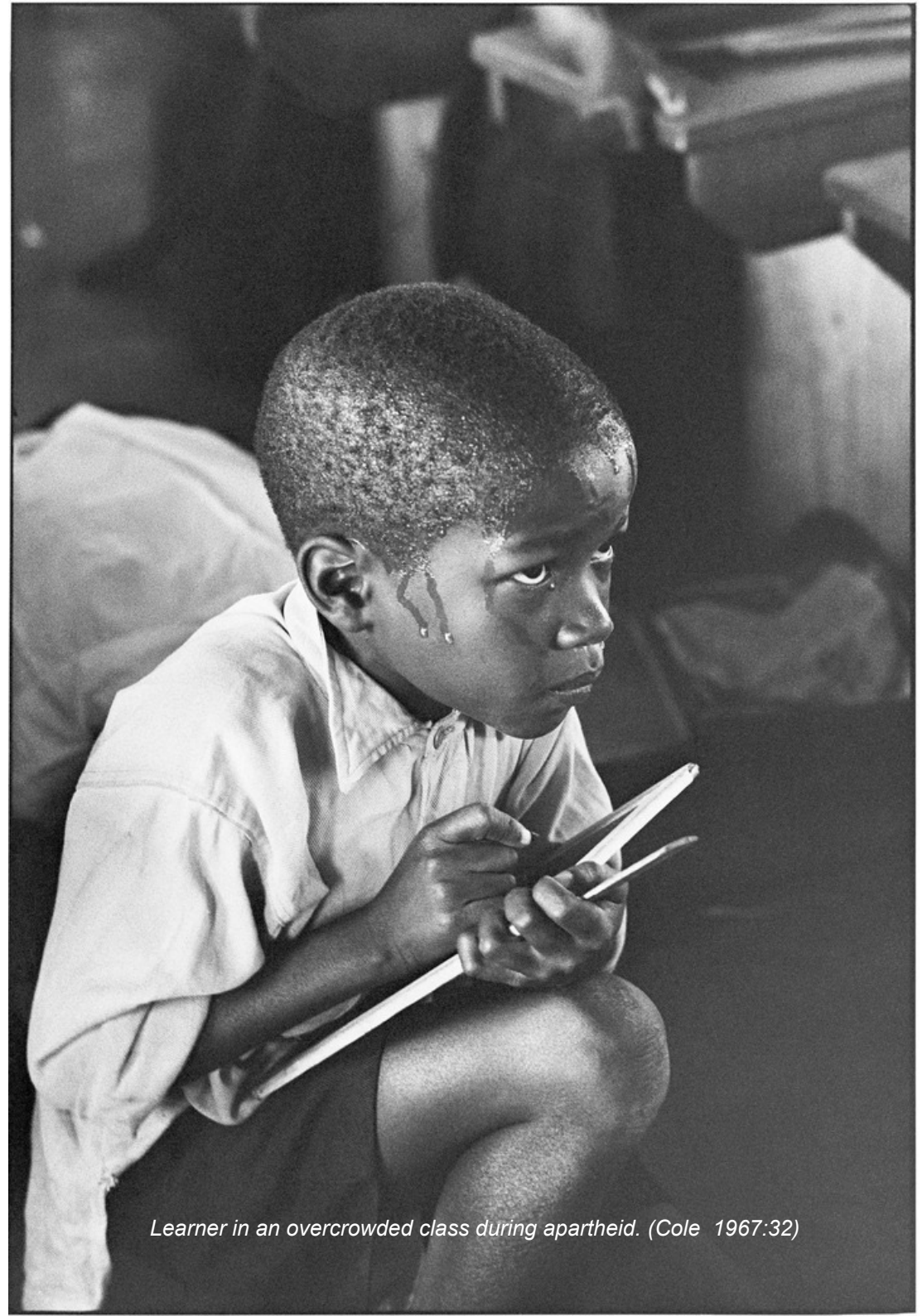


“When you live in a poor neighbourhood, you live in an area where you have to have poor schools; when you have poor schools, you have poor teachers; when you have poor teachers, you have a poor education, with poor education, you can only work on a poor paying job; and a poor paying job enables you to live in a poor neighbourhood. It’s a very vicious cycle.” Malcolm X

Students kneel on the floor to write as the Apartheid Government was casual about furnishing schools for blacks. (Source: Cole 1967:27)

Before the coming into government of the National Party in 1948, African learners were educated by foreign churches and missions. An Act was soon passed that said all schools should register with the government in order for them to function. This was the party's strategy to control educating young people and proper implementation of other apartheid policies, as advised by W.W.M. Eisselen, the person commissioned to head the design of Bantu Education, soon after the government took over, almost all missionary schools and night schools were forced to close due to the extremely harsh conditions they had to function under. This marked the end of the missionary school building and the birth of Apartheid schools.

Some of the fundamental principles of Apartheid were based on the National Party's view that white people were a superior and pure race which had to maintain its purity through racial segregation and removing other races from whites either geographically or culturally. Through the school, they wanted to indoctrinate African children and make them believe that they were of an inferior race and should be taught and prepared for manual labour jobs awaiting them in the white dominated society. (Christie in Kallaway, 1984:101)



Learner in an overcrowded class during apartheid. (Cole 1967:32)

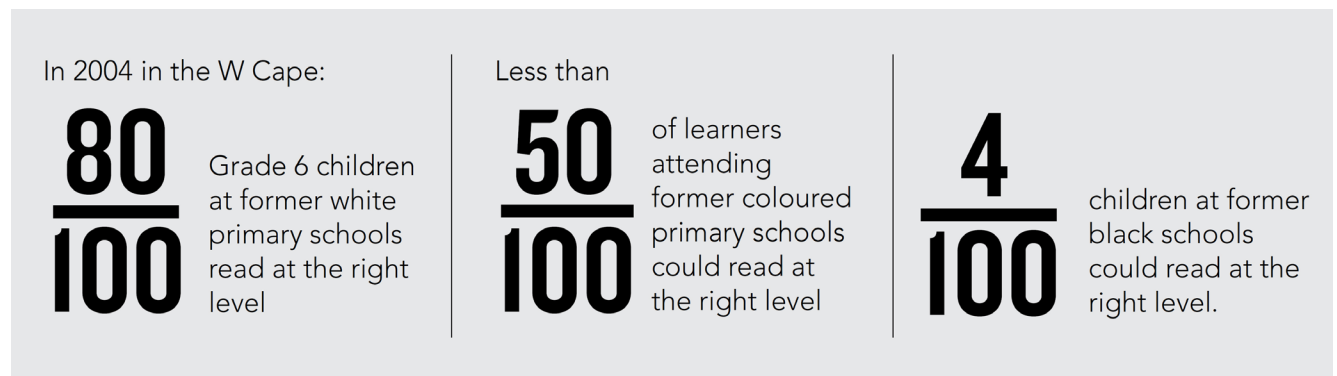
Funding African learners' education was on a fixed amount regardless of how many learners and teachers were in these schools. For quite a long period, even before the introduction of the Bantu Education Act, the ratio of spending between white and black schools per capita had been at around 10:1. These policies were not just racist and oppressing African learners, but were also meant to make sure that Africans were non-competitive and cheap labour. These policies also extended to the schools' architecture.

The apartheid school typology was designed along the same lines as other structures built by the apartheid regime and could be likened to the recent ANC government's low-cost RDP housing scheme. That school typology was a product of economic rationalising and racial discrimination. The Bantu Education was an impoverished system, and that mind-set was also extended to the school buildings and infrastructure within which the system was delivered. It was about using the most minimal budget in erecting the maximum spatial envelopes with the building and layout designs derived from a suite of typological solutions using a formula of minimising the job of delivery and assembly. (Pieterse, 2010:205)

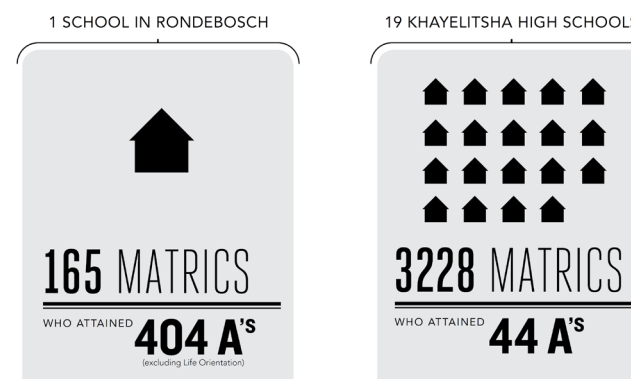
Basic human considerations of identity, comfort and spatial refinement were marginalised, and that resulted in a great loss to the built environment.



1982 Apartheid government spending on education per child (s-Equal Education NGO)



Former white schools vs coloured vs black schools (Source: Equal Education NGO)



The Gap between former white schools and apartheid township schools (Source: Equal Education NGO)

PASS RATE	2009	2010
KHAYELITSHA	51%	50%
EASTERN CAPE	51%	58%
RONDEBOSCH	100%	100%

The Gap between former white schools and apartheid township schools (Source: Equal Education NGO)

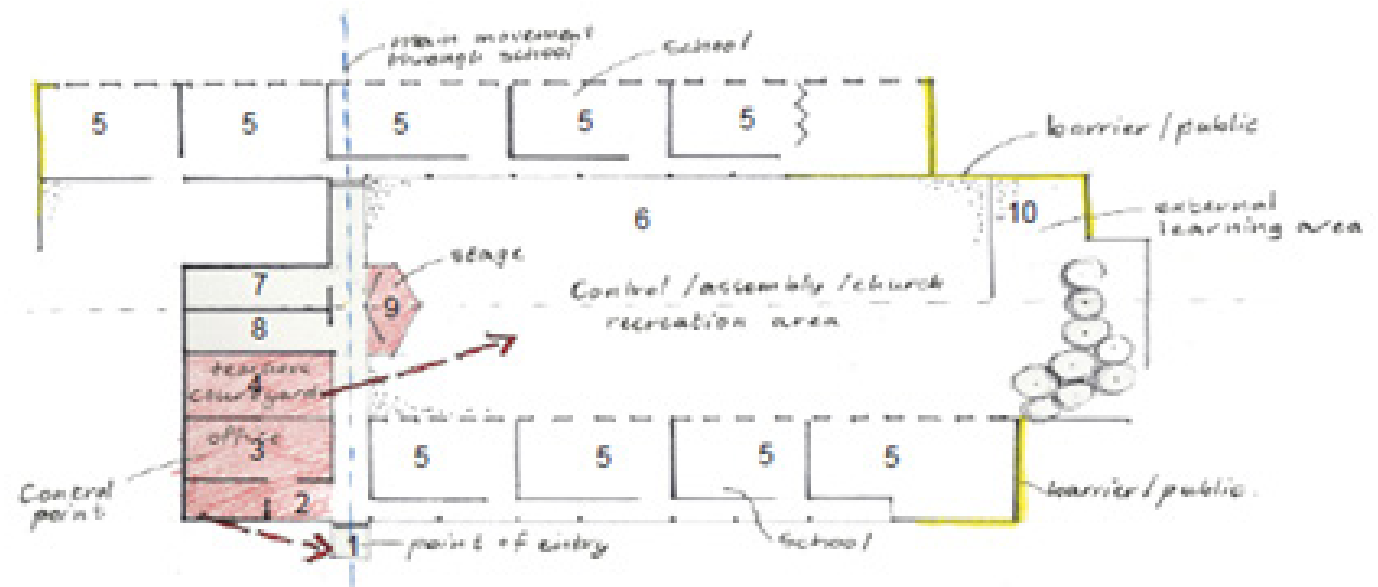
Education cannot be seen as a separate entity from society. The changes the society makes, education should also follow suit. The advancements that society makes, education should follow as well.

Bringing schools closer to work, physically and in nature, increases the relevance of education to life outside the school gates. This expands our learning environment not only to the school premises but also borrow from our ancestors in the use of informal learning processes as that has also played an important role in the development of society

Primary school in the Eastern Cape, due to lack of classroom space.



- | Key | |
|-----|------------------------|
| 01. | Entrance |
| 02. | Office and storage |
| 03. | Staff room |
| 04. | Staff courtyard |
| 05. | Classrooms |
| 06. | Assembly/play area |
| 07. | Boys ablutions |
| 08. | Girls ablutions |
| 09. | Stage |
| 10. | External teaching area |



Calderwood's typical plan of a "bantu" school (1956)

THE CONCEPT OF SPACE IN APARTHEID SCHOOLS

Social spaces play an important role in schools and the theory of social space as developed by the French intellectual Henri Lefebvre is about the idea that power is exercised in and through space and it is about how social change manifests spatially and about the destruction and formation occurring during that process.

Jenni Karlsson states, as discussed previously, that missionaries and their churches played quite an important role in introducing institutionalised colonial education in the country. The photograph below, as analysed by Jenni Karlsson, is of a primary school class at Adams Mission, south of Durban, is an example of this notion.

“The colonial architecture resonates with European influence in the use of stone masonry, arched windows, wooden floorboards and ceiling. Instruments appropriate to a western curriculum are to hand: the chalkboard wrapping the walls, a T-square ruler, the basic number system, music notation, and improved desks. The different heights of the tables suggest this is a multi-grade class, and this may be confirmed in the presence of the other adult at the back of the classroom.”

Karlsson goes on to analyse this classroom and finds that on first appearance the class appears to have a relaxed, cheerful, and participatory atmosphere with learners responding to eagerly question posed by the teacher. On closer examination she found that there was a performance space characterised by discipline, order, and surveillance.

“Uniformed learners sitting with straight backs and arms crossed, only releasing this position to answer a question. Each table contains slates, metal mugs, bags, and shoes are placed on the table keeping the floor clear of any clutter. On the lower front table the teacher has placed a book guiding her through the lesson. The teacher’s table, to the rear of the room, enables the other adult to keep an eye on learners as well as the educator. The chalkboard wrapped around the wall provides the learners with the continuous and inescapable presence of lessons and things to be remembered.” (Kallaway, 2002:341)

She further points out Lefebvre states that a ruling class uses state institutions to initiate, test and prepare citizens to take up their positions in the social hierarchy and that policies and practices of the dominant ruling group influence public institutions. Meaning, even though this primary school is not state owned and controlled, the image shows the adoption of colonial education practices in the form of order and cleanliness and notions of good teaching practice. These norms represent a spatial practice associated with a back to basics’ approach that gives importance to the teacher and textbooks rather than the learner



and to order and control instead of critical engagement that nowadays informs our notions of good teaching and learning. The architecture, uniforms, the teacher's clothes, the seating arrangements of learners in relation to a standing teacher, the slates, cups, and music notation are all imitative of an imported material culture and spatial practices brought to Africa by the colonisers.

During the 1976 marches after the education authority's imposition of the policy of Afrikaans as a compulsory medium of instruction became the symbol of the oppressive Bantu education. This led to learners claiming the public state controlled space of the street by marching to the office of the education authorities. The streets played a centre role in the process of education during this important moment in South African history as they became a symbolic site or classroom of learning with first lessons, according to Karlsson, being about the limits of power and protest, language policy, and value of life. The unarmed learners faced the full military force of the police and that resulted in the death of more than 100 innocent learners, detentions and torture by the police led to many young people fleeing the wide spread terror in the country and joining the armed struggle of the National Liberation Movement, the ANC, and continuing their education in exile. On the other hand schools became the inverse of what they are meant for.

They became targets for arson and vandalism instead of places for learning and discovery because they were sites associated with the repressive apartheid regime.

"In 1976, 257 505 pupils enrolled in Form 1 (Standard Seven), the first year of secondary school, but only 38 000 students could be accommodated. Overcrowding reached new heights. Educational standards declined further. The injustices of Bantu Education were becoming increasingly intolerable." Ndlovu (2004:323)

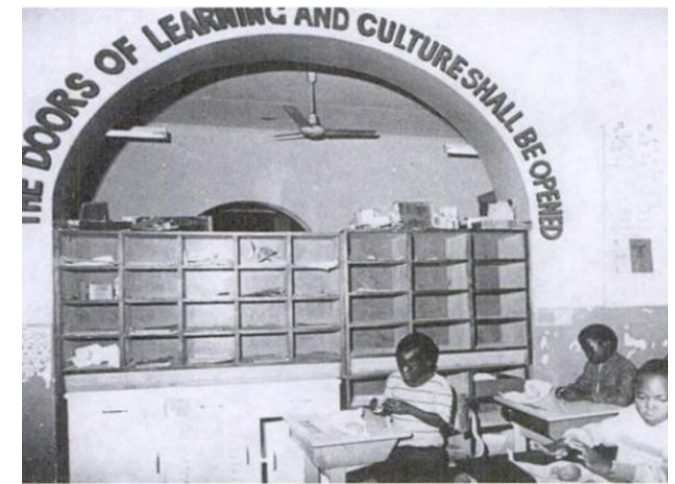
As more and more people young and old were fleeing the country to exile, in 1979, they started a school for young people on a land given to the ANC by the President of Tanzania, Julius Nyerere.



Protests by Soweto school children on that day marked the end of submissiveness to the Apartheid regime. (Source: Apartheid Museum)

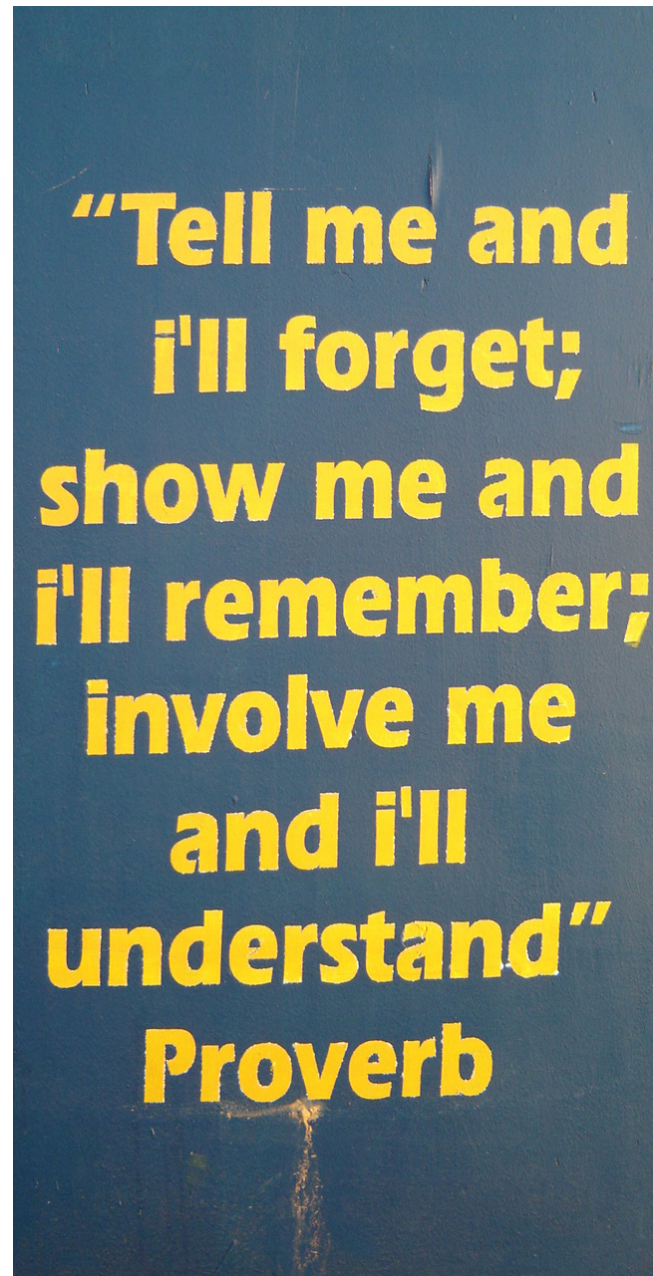
This Solomon Mahlangu Freedom College, named in memory of the first young ANC freedom fighter hanged by the apartheid law courts when he was 23 years of age, was a South African school for exiled South Africans which represented an important initiative to provide schooling that "diverged fundamentally from Bantu education." Kallaway (2002:348)

This was a well-resourced school offering a wide range of subjects and teaching from an ANC ideological perspective. Inspired by the very important ANC document, the Freedom Charter, on its walls it was inscribed "The Doors of Learning and Culture Shall Be Opened", and this school functioned as a powerful symbol of hope for those in exile during the years of Bantu Education.



The primary school at SOMAFSCO. (Eli Weinberg) (Source: Kallaway 2002:349)

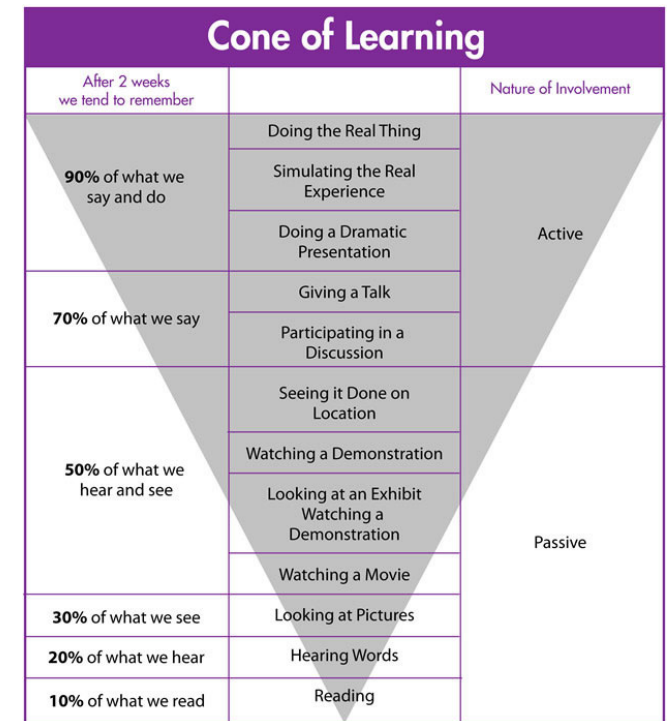
EXPANDING THE POSSIBILITIES OF LEARNING



The previous chapters have discussed how schools have historically been used as tools to discipline and control young people, so they would become obedient workers in the industrial world. Little has changed in terms of the school building typology's physical form since the formation of the public education system. (Dudek 2005:30)

There is a need to re-conceptualise urban public schools as the world in the 21st century is facing challenges that are completely different from those from the past century. We need to move away from the status quo in terms of the public school building design and re-think a new way of addressing the issues. This chapter explores and tries to expand new possibilities of learning.

Currently, the public education system is based on academic education as the basis of learning. Any learner who lacks academic ability is considered non-smart, and those that excel in this type of education are considered to be smart learners. Academic education is not necessarily the best form of learning for everyone. Some learners are naturally not suited to this type of learning, which is mainly based on learners having to sit down and keep quiet and listen to what the teacher says as part of the day's class. This type of learning is passive in nature, and is not the most natural way to learn as was earlier discussed on how children learn through experiencing real world activities, through play, observation, imitation-modelling, and continuously doing the activities.



The Cone Of Learning adapted from (Dale, 1969)



*Revised Bloom's Taxonomy of Learning pyramid.
(Source: <http://roxannnys.pbworks.com>)*

We have noticed the drop-out rates in the education system from Grade 10 to 12, which might quite likely be affected by the way children are taught. Research done by the National Training Laboratory and Professor Edgar Dale of Arizona State University, though debatable, shows that how new information is presented to learners has a direct impact on the amount that is retained. It looks at the seven common methods of teaching and rates accordingly. In order for real learning to happen, children must be engaged and involved through actively doing things and collaborations with fellow learners, with the teacher playing the role of a facilitator not just that of a teacher.

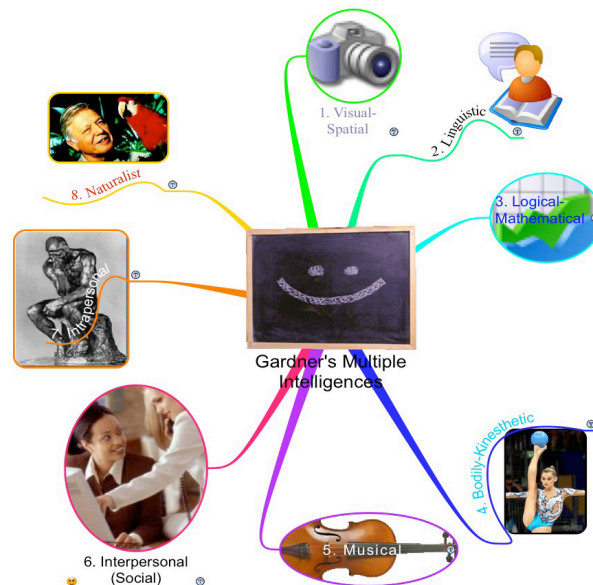
Young people are living in one of the most exciting times in history in an environment that is intensely stimulating, with all the options they have of computers, games, music and other fun activities that can be incorporated into the classroom and make learning fun. Standardisation of testing as practiced in the past should also be limited and rather focus on enhancing the intelligences of young people. They should be woken up to what they have inside of them, as Galileo Galilei once said: "You cannot teach a person anything; you can only help him find it within himself." Learners should be given an opportunity to discover and enhance their talents and abilities, in essence, all the different intelligences that they most enjoy using. In achieving this, the new urban school should use the theory of multiple intelligences by Howard Gardner as the basis for space creation. Gardner argues that children and human beings in general for that matter, have eight intelligences rather than intelligence being based on a single general ability that is academic.

He proposed that instead of memorization and just describing the world to children, conditions to change the world should be created instead. His argument is that there are multiple approaches and processes to problem solving.

The multiple intelligences to be the basis of space creation in the school are:

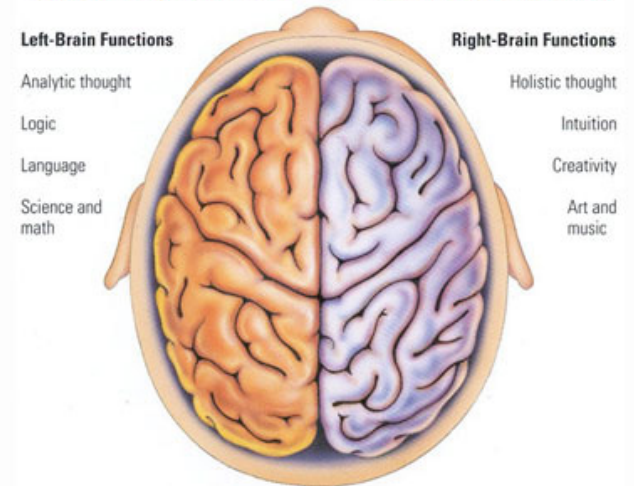
- Spatial-Visual intelligence (picture smart),
- Linguistics intelligence (word smart),
- Logical-mathematical intelligence (number-smart)
- Bodily-Kinaesthetic intelligence (body smart),
- Musical intelligence (music smart),
- Interpersonal-Social intelligence (people smart),
- Intrapersonal intelligence (self-smart), and
- Naturalist intelligence (nature smart).

Instead of using only a pen and paper as a measure of intelligence, these are going to be used as tools for teaching and learning and a measure, accordingly.

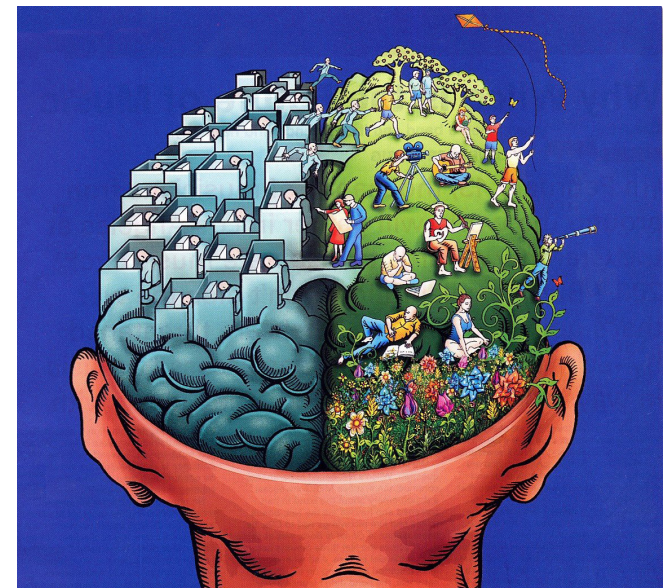


Howard Gardner's Multiple Intelligences (pbworks.com)

EXPERIENCE =
USABILITY/ANALYTIC + DESIGN/CREATIVE



"Education is the result of experience. The wider & more complex the experience; the deeper & more intense the education. The field of experience widens in direct relation to the frequency of contacts, and its complexity grows with the increase in their variety."
Giancarlo (image source: ninespv.wordpress.com)



Left brain vs right brain. (Source: jeffkorhan.com)

RE-CONCEPTUALISING LEARNING SPACE

SITE AND SITE MAKING

Security is one of the most important elements to school design, as learners cannot focus properly on studying in an unsafe environment. Therefore, the entrance and access to the school must be treated with utmost care as it is an important node that should provide safety for gathering, safety for waiting to be picked up and could allow for informal traders to commerce.

SCHOOL ON SITE

The siting of the school should definitely be contrary to the apartheid schools which had a very negative spatial composition with little consideration for the specific conditions of each site the school was located in. The typical apartheid schools, made up of rows of uniformly distributed classrooms across their site made them look and feel too rigid, specific and controlling spatially. As Professor Iain Low once said, “the space between buildings looked ‘left-over’, not thoughtfully organised to promote productive space linking indoor and outdoor.”

(Pieterse 2010:208)

Instead of being too specific, the new possibilities for an urban school can include suggestive spaces that learners can interpret in their own unique ways for whatever use they might be using it for. The negative space can be used appropriately likewise, and instead of just being left over space, intentionally designed to be used for a number of activities such as assembly, playgrounds, doing experiments and made

available to the community after hours and on weekends. Such spaces can be an extension of the interior spaces and an extension of the urban landscape.

SCHOOL BUILDING

Crossover and overlapping of functions and making spaces multi-functional spaces becomes a key necessity for the continued existence of schools in the inner city as space is very limited. The schools hall should not just be an assembly point, but also an exciting space that suggests hybridity used as an indoor sports centre, gymnasium, for examinations, prize giving ceremonies, beauty pageants. There is also a possibility of using this space to generate revenue for the school by making it usable by the community to host weddings, church service, birthday parties, and other civic events. If the school is properly located next to corporate and government offices, this space could be used to host conferences, meetings, product launches and other corporate events. This space can learn from the city by becoming truly diverse.

MATERIALITY

Material use has quite an impact in the use, look and feel of school buildings. During apartheid, the order of the day was to produce low-cost RDP-like, maintenance free schools that could be given to the communities and then forgotten. To achieve this, cold uniform materials like reinforced concrete, stock and face bricks were used in.

NATURE

There's a general consensus between architects, teachers and psychologists that a well functioning; well designed school building plays a very important role in socio-emotional and intelligence development and achievement of learners.

The inclusion of nature in school designs is for instance said to play a positive role of enhancing students' enthusiasm and performance in class and make them engaged in their work. Having the environment part of learning is said to have lots of benefits such as better reading and writing, doing better in maths, science and social studies. The school's garden can also form part of learning and learners can get to learn more about permaculture and related studies by actively being involved in growing their own food and cooking as part of their curriculum. To foster active interaction with the environment, a courtyard could be used for outdoor lessons and for multiple other uses by the learners and the community.

THE ENVIRONMENT & PLAY AREAS

The environment plays a critical role in the development of human beings and it should also form part of the curriculum by having it as a teacher that influences the learners and them in return influence their environment. Making use of atrium spaces and courtyards make it easier to supervise the learners and to protect them from outside elements whilst giving them space to explore and learn. It is also beneficial to have only a limited number of entrances to a school in the city, and a smaller area accessible on the ground floor as this will create better safety and security measures for the learners and the whole school in general. The roof tops should also be accessible and usable for a variety of activities as space is quite limited in this context.

That space can be accessible only by learners as a playground, socialising, meditation, and the other advantage is that it is a really safe space as intruders and outsiders cannot easily get to that level.

SUSTAINABLE ENERGY PRINCIPLES

Comfort and efficiency in the school are very important aspects of ensuring that learners can focus on what matters, learning all year round. This then requires that a school uses proper passive design principles such as orientation (having the building's long facade face north), passive cooling and heating, making use of solar energy, thermal mass storage walls, recycling grey water, energy conservation and waste management principles.

VENTILATION & NATURAL LIGHT

The orientation is one of the main characteristics of the school to have it take advantage of its location. It has been orientated to face north, so as to make the winter season more bearable and minimising the need for heating.

In order to provide adequate ventilation as the building is quite thick in width, cross ventilation techniques are used and the big atrium space also plays an important role in the provision of healthy air in the building, especially in summer. The north façade catches a lot of natural light and through the maximum use of its big windows, natural light can be drawn into the deeper spaces in the building. The small pockets to the south side also provide a lot of natural lighting so learners can concentrate longer when there's sufficient natural light.

COMMUNITY

The role that the school plays in the community should be enhanced so it plays an active and wider role, and not just cater for the learners and teachers but the community as a whole by making use of certain spaces as a community centre. It offers adults a chance to learn, computer training facilities, career and health care consultation area and a multi-purpose sports centre that can also be used as a hall for weddings, church, meetings and other community services.

CLASSROOMS

To maximise natural light energy-efficiency, large windows on the north side of classrooms have been used. Classroom spaces are flexible and can be made larger, smaller or cosier by opening the central folding doors.

TECHNOLOGY

The school of this age should incorporate technology inside the classroom to better enable the teaching process. It should use SMART white boards to foster interactive learning and help increase the educational outcomes, as learners can also download lessons that they have missed from the internet.

Basic human considerations in an architectural design, of identity, comfort and spatial refinement were marginalised and that resulted in a great loss to the schools' built environment. In most townships, schools were the only institutional structures, which worsened the situation as it placed more emphasis on them for collective social action by the community.

There was an intentional disempowering of the youth and the surrounding communities through the relationship between its architecture (space) and the Bantu Education system, which most likely contributed towards the social dysfunction of these communities. The designs were based on standardised approaches to school configuration and classroom spaces design. The schools were made up of just the classrooms, having no space for specialised school spaces such as libraries, gymnasiums and halls. The site context and the entire surrounding community were not considered nor recognised as key considerations for good school building design.

“These mono-functional institutions reinforced the worst attributes of the apartheid state, with the vast majority of black youth and children relegated to these inadequate learning environments.”

Prof. Iain Low

CONCLUSION

In this study, we noticed that in the current system of education, there is a big gap between high school education and tertiary education, which results in a high failure and drop-out rate at tertiary level. There is a need for this gap to be filled with a different kind of school, a school that offers more than just the current matric certificate based on academic education, but a school that offers more. The school is supposed to prepare learners for a world that is changing rapidly as a result of technology advancements and globalization, and move away from the traditional school system based on the industrial model of students moving from room to room in a teacher centred environment, being prepared to work in factories. The school in the 21st century must be learner centred and prepare them to be well informed and well educated citizens capable of critical thinking. The world needs more entrepreneurs, innovators and inventors. This should be based on an interdisciplinary and project-based approach to the curriculum with the aim of enhancing the students' multiple intelligences.

The school should have a variety of spaces to enable a diversity of methods to happen. Learning should not be restricted to the formal classroom and to certain periods. It should happen anytime and anywhere the students may be. In fact, the entire school, including circulation and play areas should all be used as learning spaces. Learning must not be confined to classrooms, but a variety of flexible learning studios making up a small learning community should be areas where learning happens.

Rather than having a school as an isolated institution that is considered cold and detached, it should now be inclusive in the community and become an extension of home. Public schools are still being rolled out like low-cost housing, on a massive scale and little creativity or considerations of other important elements of design.

This school has to take into account that young people learn in different ways and therefore, though it's structured, it should allow for flexible use of space and allow children the freedom to explore their different interests on particular subject matters that might not necessarily be part of or related to their subject matter and develop their unique interests and abilities.

"Education is the great engine of personal development. It is through education that the daughter of a peasant can become a doctor, that the son of a mineworker can become the head of the mine that a child of farmworkers can become the president of a great nation. It is what we make out of what we have, not what we are given, that separates one person from another."
Nelson Mandela

02 PRECEDENTS



CENTRAL SAINT MARTINS COLLEGE OF ARTS & DESIGN
BINH DUONG JUNIOR HIGH SCHOOL
THE COOPER UNION BUILDING

PRECEDENTS

CENTRAL SAINT MARTINS COLLEGE OF ARTS AND DESIGN London – by Stanton Williams Architects

The challenges that are facing the Johannesburg inner-city are not unique to it, but other inner-cities around the world are also facing similar challenges of having to make the most of the limited spaces they have in the city.

The University of the Arts in London recently commissioned the design on a new campus on a derelict piece of land in London as part of an urban regeneration project.

The campus building sits on an old industrial site next to a train station that connects it to the rest of Britain and main land Europe. The brief was to combine the design of the new campus building with the old 19th century heritage building and transit sheds. The architects' concept was to provide an architecture that inspires, and provide a series of spaces whose aim is to liberate and make the energy visible.

The new building incorporates the old industrial building's materials and creates robust spaces for the students and have lots natural light coming in. One of the key and distinct elements about this school is the internal street which draws a lot of daylight in and acts as the main circulation spine of the building with suspended walkways, food cafes, film studios, graphic and light projection rooms. Flexibility is used as one of the main space design drivers, and used for the creation of spaces that stimulate creativity, socialising and student collaboration.



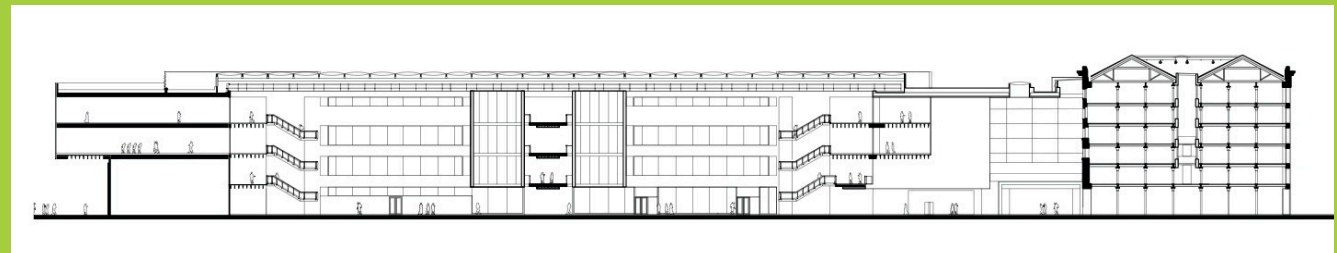
Central St Martins College of Arts & Design, London (© hufon+crow)

In order to allow the different departments in the school to develop their own identities and maintain the integrity of the buildings as a whole, space has been left in the raw state of the old and spaces can be changed to suit a certain program quite easily. The retained old industrial building has been adopted to include the school's library, whilst the transit shed behind has been converted to house workshops. To add more life and excitement to the school, retail spaces have been added in the form bars and other shops.

The building's main element, the covered central 'street' is 110m long, 12m wide and 20 m high. It is covered with translucent ETFE roof and its long span is regularly interrupted by a rhythm of service cores which house the stairs, lifts, student and staff toilets. This space was conceived as being an active area and the main arena for student life. All circulation happens, or crosses paths here, and it offers break out areas for spontaneous meetings. Students exchange ideas in this space and is also used as a relaxation space. This very lively and active street is also used for exhibitions, performances and fashion shows. It is connected on all sides visually and students can watch others' performances and work from the different disciplines offered at the school can be exhibited here. This school is one of the best examples of school designs that are inverting the space for learning. Learning is not limited to the classrooms anymore, but most of it happens informally on the covered internal street. (StantonWilliams.com)



Ground Floor Plan



Longitudinal Section



Cross-Section

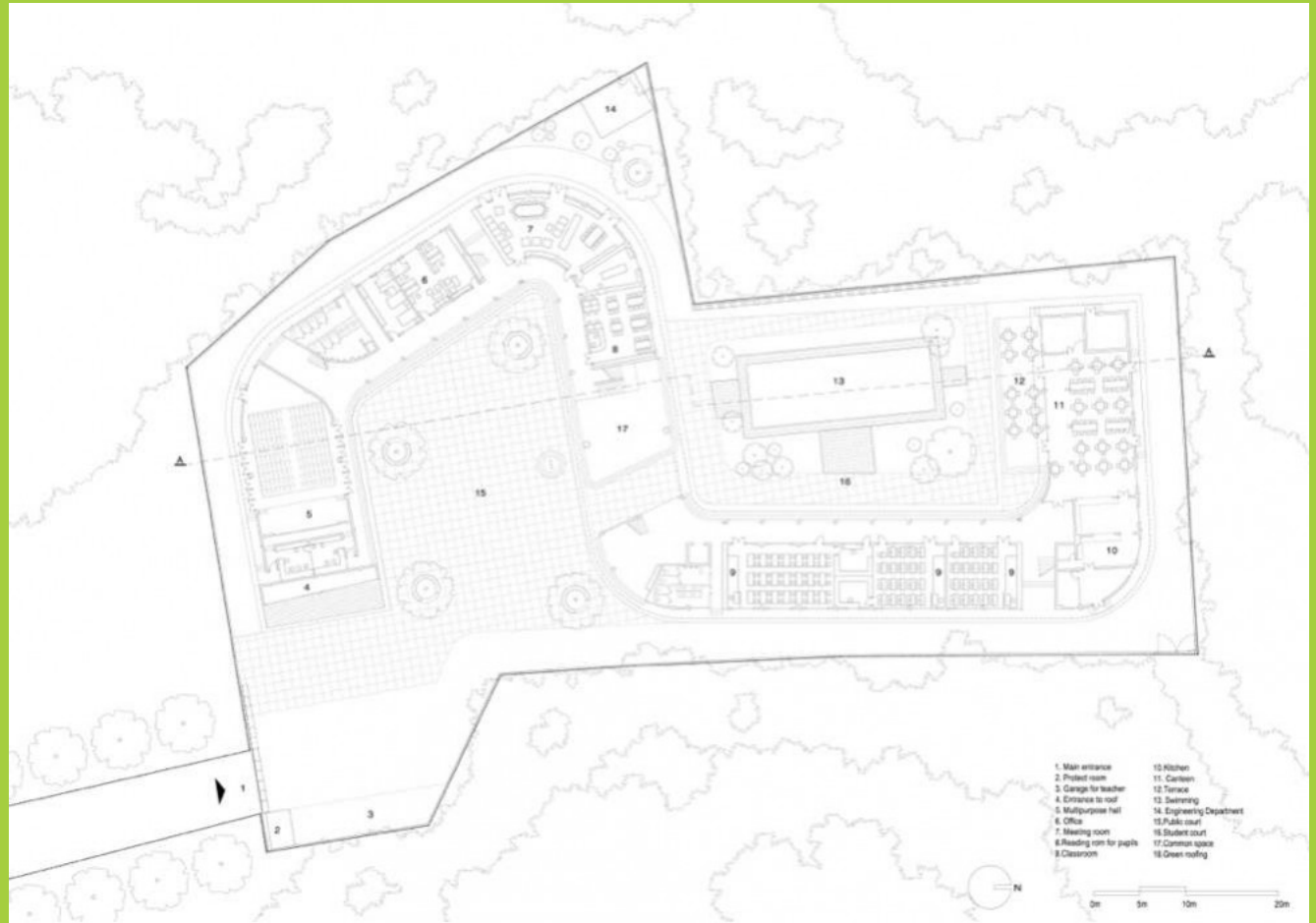


BINH DUONG JUNIOR HIGH SCHOOL

Vietnam – by Vo Trong Nghia + Shunri Nishizawa + Daisuke Sanuki Architects

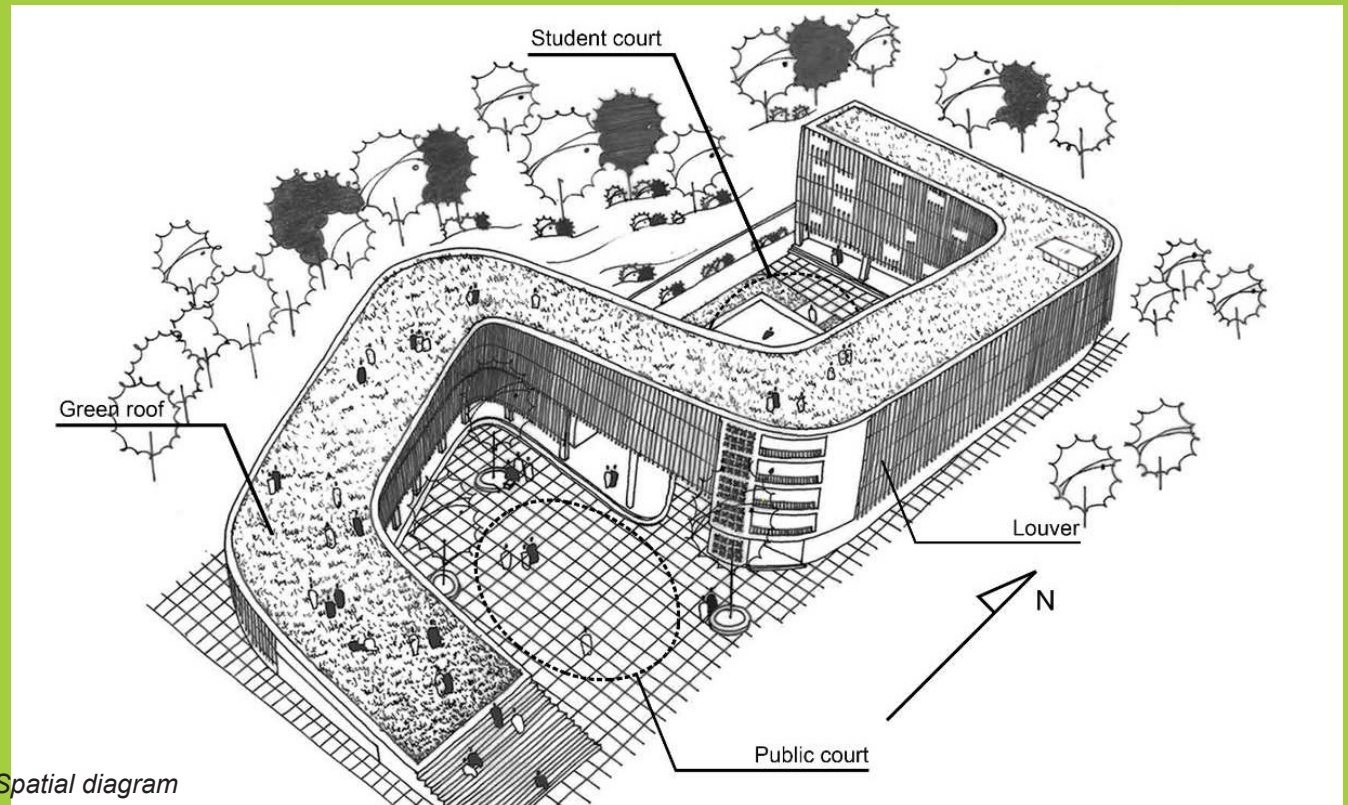
This school, which houses 800 students, is situated within a lush forest of trees in the Vietnamese new city of Binh Duong. The height profile of the school was restricted to not exceed that of trees and hence it is five stories high. It appears to be slowly turning and growing out of the ground as a way of emphasizing the building's connection to the site. The school building is made up of white concrete columns and vertical pre-cast concrete louvers supporting the exterior semi-outside corridor spaces. The shading devices assist a lot in minimizing direct sunlight and they also act like a natural ventilation system for the semi-exterior corridor spaces and maintain nice views from the interior spaces.

The main distinct feature about this school is its semi-permeable S-shaped footprint which creates two semi-protected exterior green courtyards with different characteristics. The first courtyard in front is used as a public space serving for formal events such as school meetings and it is surrounded by the gymnasium, laboratories, a library and a staff room looking into this space. The other courtyard is more private and serves as the students' classrooms. This is where students reflect their personal moments. It allows students to socialize around the swimming pool and can provide the ability for complete privacy. These two spaces, though different in character, are the heart of the school with views looking out from all parts of the school and enjoying the various activities happening in the courtyard.



They both have a semi-transparent character within the fluid, S-shaped floor plan that allows for interaction between the students and their teachers. The school also makes use of its roof by an accessible green roof garden use as part of the passive cooling strategy.

The courtyards are the bond that holds the whole school together, and hold the school with the community together. The sensitivity to its context makes the school sit wonderfully well with the trees and the rest of the natural environment.



Spatial diagram



Square pavers in the open air courtyards. © oki hiroyuki



Open area between courtyards. © oki hiroyuki



Open air courtyards © oki hiroyuki

THE COOPER UNION BUILDING

NEW YORK, UNITED STATES OF AMERICA
Morphosis

41 Cooper Square, the new academic building for The Cooper Union, aspires to manifest the character, culture and vibrancy of both the 150 year-old institution and of the city in which it was founded. The institution remains committed to Peter Cooper's radically optimistic intention to provide an education "as free as water and air" and has subsequently grown to become a renowned intellectual and cultural center for the City of New York. 41 Cooper Square aspires to reflect the institution's stated goal to create an iconic building – one that reflects its values and aspirations as a center for advanced and innovative education in Art, Architecture and Engineering.

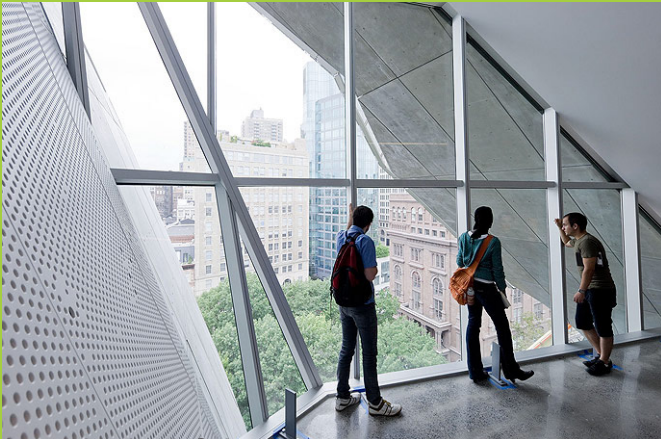
Internally, the building is conceived as a vehicle to foster collaboration and cross-disciplinary dialogue among the college's three schools, previously housed in separate buildings. A vertical piazza—the central space for informal social, intellectual and creative exchange—forms the heart of the new academic building. An undulating lattice envelopes a 20-foot wide grand stair which ascends four stories from the ground level through the sky-lit central atrium, which itself reaches to the full height of the building. This vertical piazza is the social heart of the building, providing a place for impromptu and planned meetings, student gatherings, lectures, and for the intellectual debate that defines the academic environment.

From the double-high entry lobby, the grand stair ascends four stories to terminate in a glazed double-high student lounge overlooking the city. On the fifth through ninth floors, sky lobbies and meeting places—including a student lounge, seminar rooms, lockers, and seating areas overlooking the cityscape—are organized around the central atrium. Sky bridges span the atrium to create connections between these informal spaces. Further reinforcement of the strategy to create a vibrant intellectual space is provided by the "skip-stop" circulation strategy which allows for both increased physical activity and for more impromptu meeting opportunities.

The primary skip-stop elevators, which make stops at the first, fifth and eighth floors, encourage occupants to use the grand stairs and sky bridges. Secondary elevators stop at each floor, both for ADA compliance and for the practical tasks of moving materials, artworks, and equipment.

In the spirit of the institution's dedication to free, open and accessible education, the building itself is symbolically open to the city. Visual transparencies and accessible public spaces connect the institution to the physical, social and cultural fabric of its urban context.





Leutschenbach School.

(Source: www.flickrhivemind.net.com)



At street level, the transparent facade invites the neighborhood to observe and to take part in the intensity of activity contained within. Many of the public functions - an exhibition gallery, board room and a two-hundred-seat auditorium - are easily accessible one level below grade.

The building reverberates with light, shadow and transparency via a high performance exterior double skin whose semi-transparent layer of perforated stainless steel wraps the building's glazed envelope to provide critical interior environmental control, while also allowing for transparencies to reveal the creative activity occurring within.



Responding to its urban context, the sculpted facade establishes a distinctive identity for Cooper Square. The building's corner entry lifts up to draw people into the lobby in a deferential gesture towards the institution's historic Foundation Building. The façade registers the iconic, curving profile of the central atrium as a glazed figure that appears to be carved out of the Third Avenue façade, connecting the creative and social heart of the building to the street.

03 DESIGN



CENTRAL SAINT MARTINS COLLEGE OF ARTS & DESIGN
BINH DUONG JUNIOR HIGH SCHOOL
THE COOPER UNION BUILDING

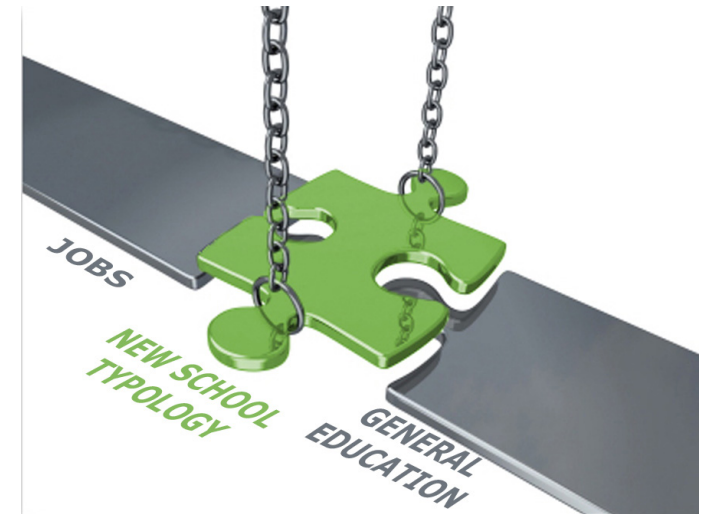
PROJECT BRIEF

The environment plays an important role in the development of learners. The urban school should put the needs of the users in the forefront. The school should be welcoming, and play an active role in the community while the community also plays an active role in the school. It should thus cater for a hybrid programme whose purpose caters for multiple uses. The street is very important in the urban environment as it is where a lot of learning happens, hence the term 'street wise'. This element should be brought into the building to help learners, so they can be able to survive and flourish in the urban lifestyle.

The spaces should encourage active learning, learning through doing. The spatial environment should be designed for not just learning from the teachers, but peer learning and learning from the environment. The users of the building must feel comfortable, engaged and feel a sense of ownership and pride in their school. Transparency should be used as a tool to increase productivity, and offer emotional and visual relief.

The programme should cater for spaces that are flexible and diverse in nature. It should also cater for social activities, play, collaboration, business activities and address technological advancements in learning. It should integrate both academic & vocational training, using the 8 human intelligences as the basis of learning.

All these attributes and more should be the basis of the proposed urban high school to cater for 500 learners.

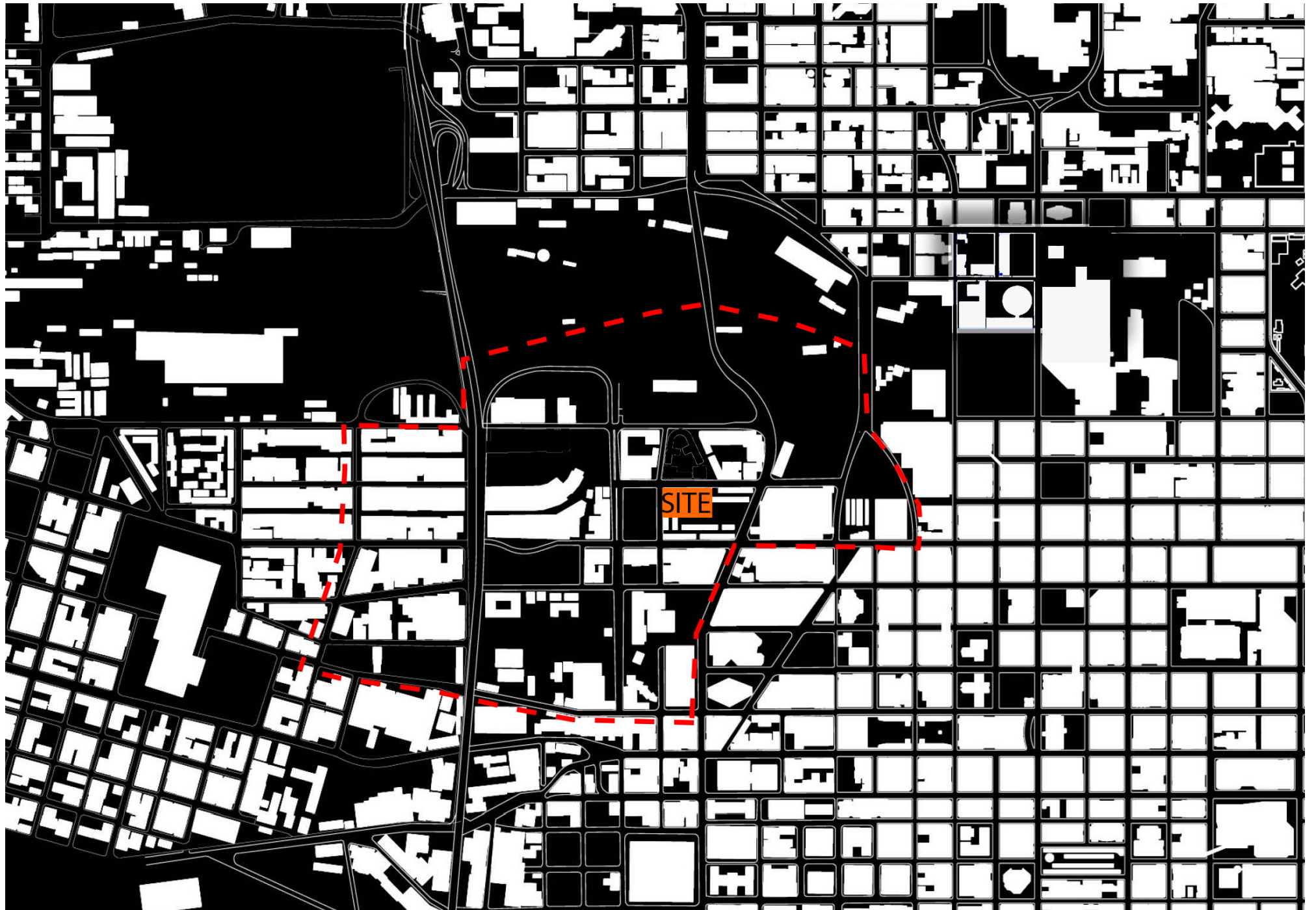


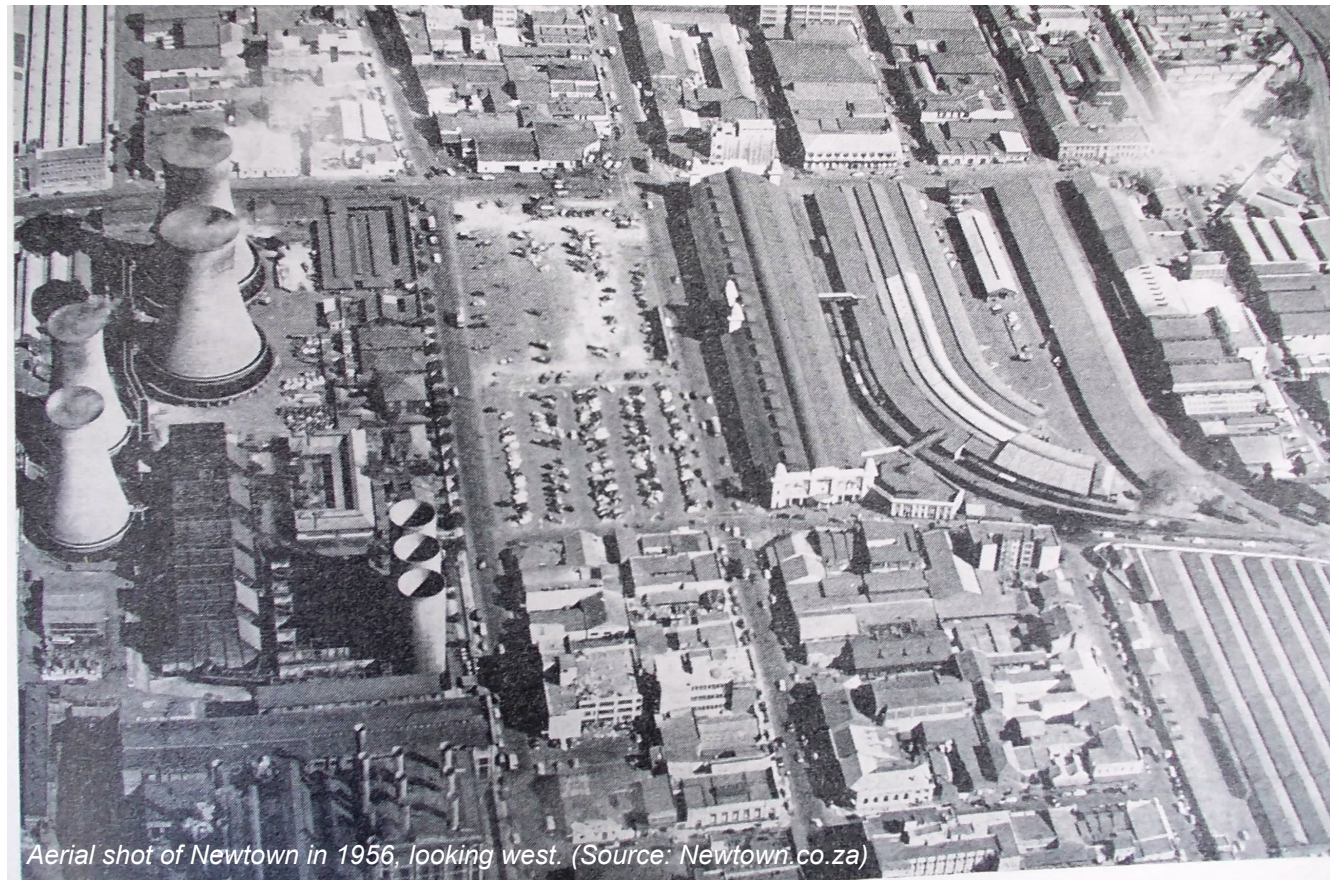
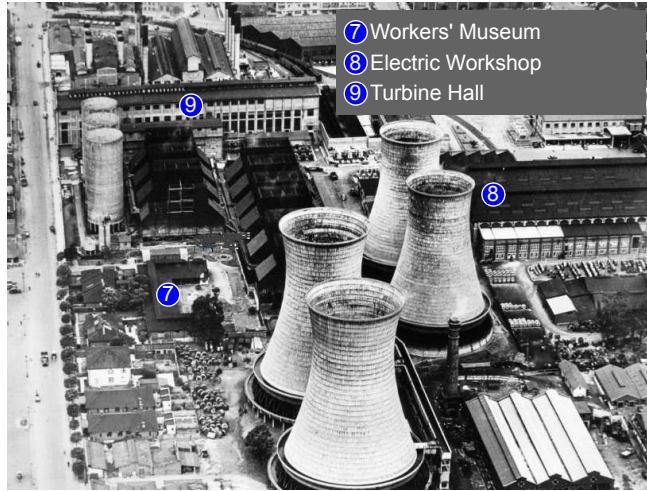
SITE ANALYSIS

The chosen site is situated within the City of Johannesburg, a city that is not only the most powerful commercial centre in Africa, but also the capital city of the Gauteng province. This is a strategic location for an urban school as there is access to institutions of higher learning and associated services within a short distance. It is also a place with many opportunities in business, corporate and other industries. There are headquarters of multi-national and national companies. All types of entrepreneurs and informal traders are found here. It is a gate-way to the mother-continent and the whole world. It is very vibrant, multi-cultural and diverse with a 'rich' history.











Newtown is located to the west of the city and is Johannesburg's cultural hub. The arts come alive in this area through its numerous venues offering a platform for creativity, entertainment and other culture-based industries. Many buildings in this area have heritage value and most have undergone adaptive re-use. It is generally mixed-use in character and is made of three distinct areas which have their own unique characters. There is the corporate and institutional belt along the eastern boundary of Newtown, the entertainment hub with live arts venues and heritage buildings in the middle. Then there's the mixed-use area with warehouses, light industrial, commercial and converted apartment buildings to the west of the M1 highway.



New Market Square (now Mary Fitzgerald Square) in Newtown, 1914. (Source: Accone, 2006:135)





Mary Fitzgerald Square now in Newtown (Source: Accone, 2006:135)

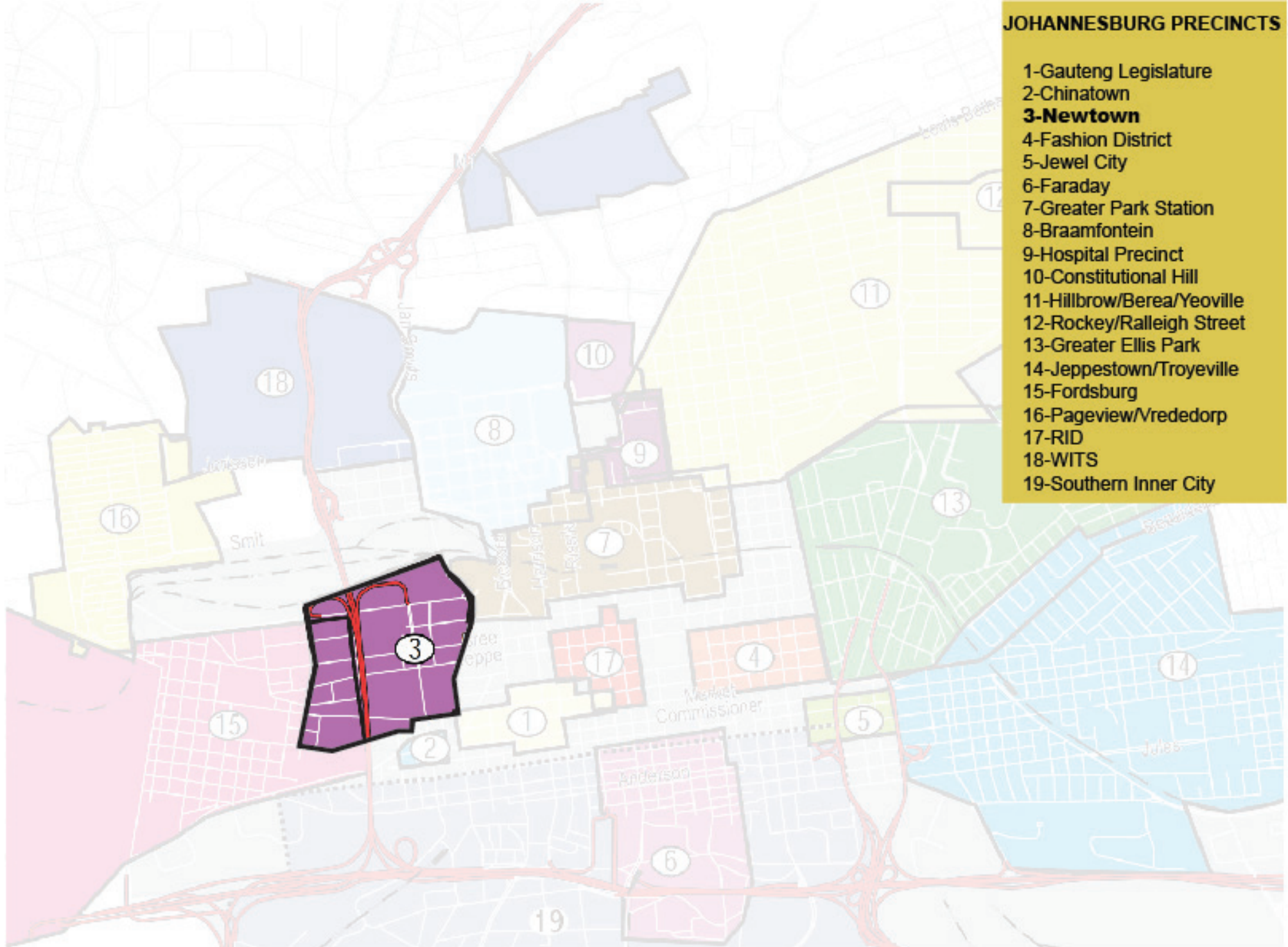


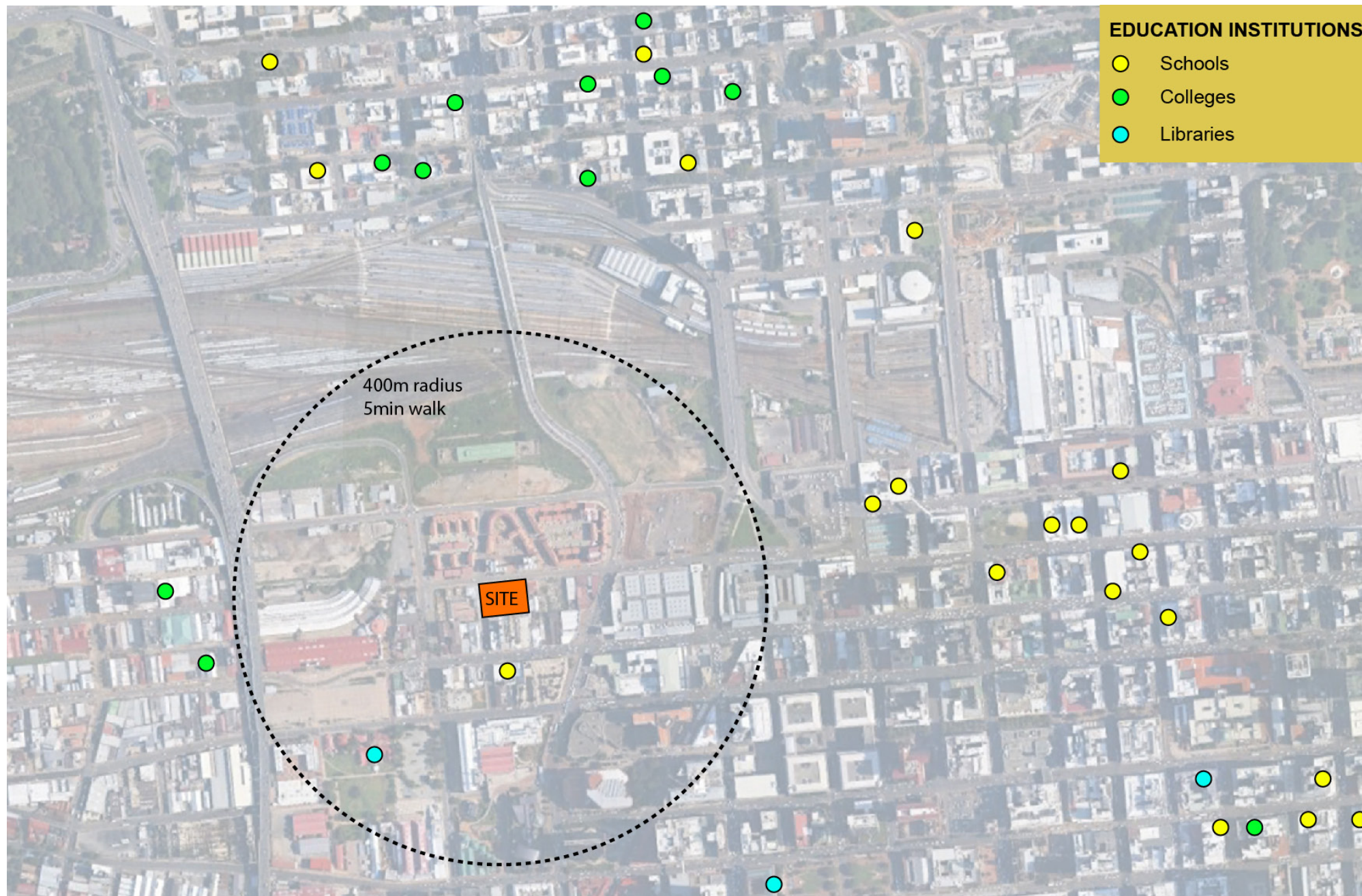
It is connected to the rest of Johannesburg through the M1 highway to the west, running north-south, the Mandela Bridge to the north, Bree and Jeppe streets to the east, and Miriam Makeba and Ntengi Piliso running south. Public transportation is accessed through Park station and Braamfontein station for trains, BRT stations and many bus stops, and Bree Metro-mall and many other taxi ranks around the city.

There is currently a major development project at the intersection of Gwigwi Mrwebi Street and Miriam Makeba Street. It is going to incorporate the existing potato shed heritage structure, a shopping mall, some high-rise mixed use residential-office buildings. This development is going to bring in a lot pedestrian traffic from Bree Street along Gwigwi Mrwebi Street to the shopping centre.

JOHANNESBURG PRECINCTS

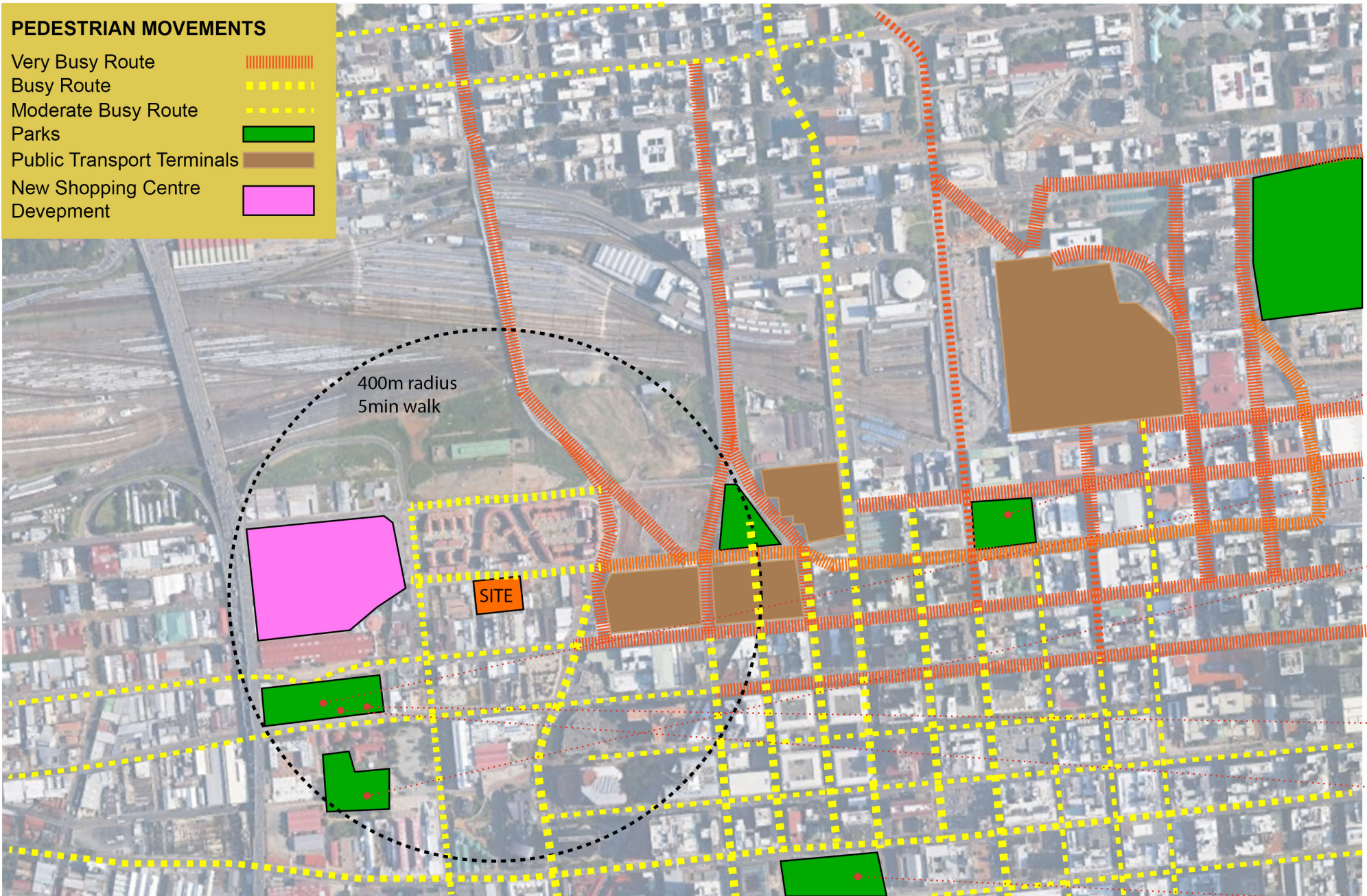
- 1-Gauteng Legislature
- 2-Chinatown
- 3-Newtown**
- 4-Fashion District
- 5-Jewel City
- 6-Faraday
- 7-Greater Park Station
- 8-Braamfontein
- 9-Hospital Precinct
- 10-Constitutional Hill
- 11-Hillbrow/Berea/Yeoville
- 12-Rockey/Ralleigh Street
- 13-Greater Ellis Park
- 14-Jeppestown/Troyeville
- 15-Fordsburg
- 16-Pageview/Vrededorp
- 17-RID
- 18-WITS
- 19-Southern Inner City

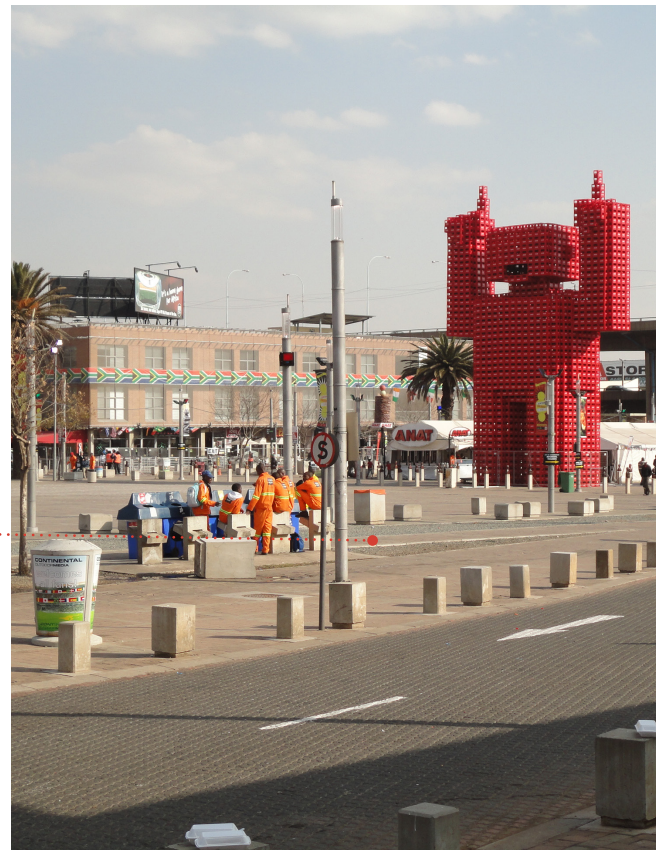


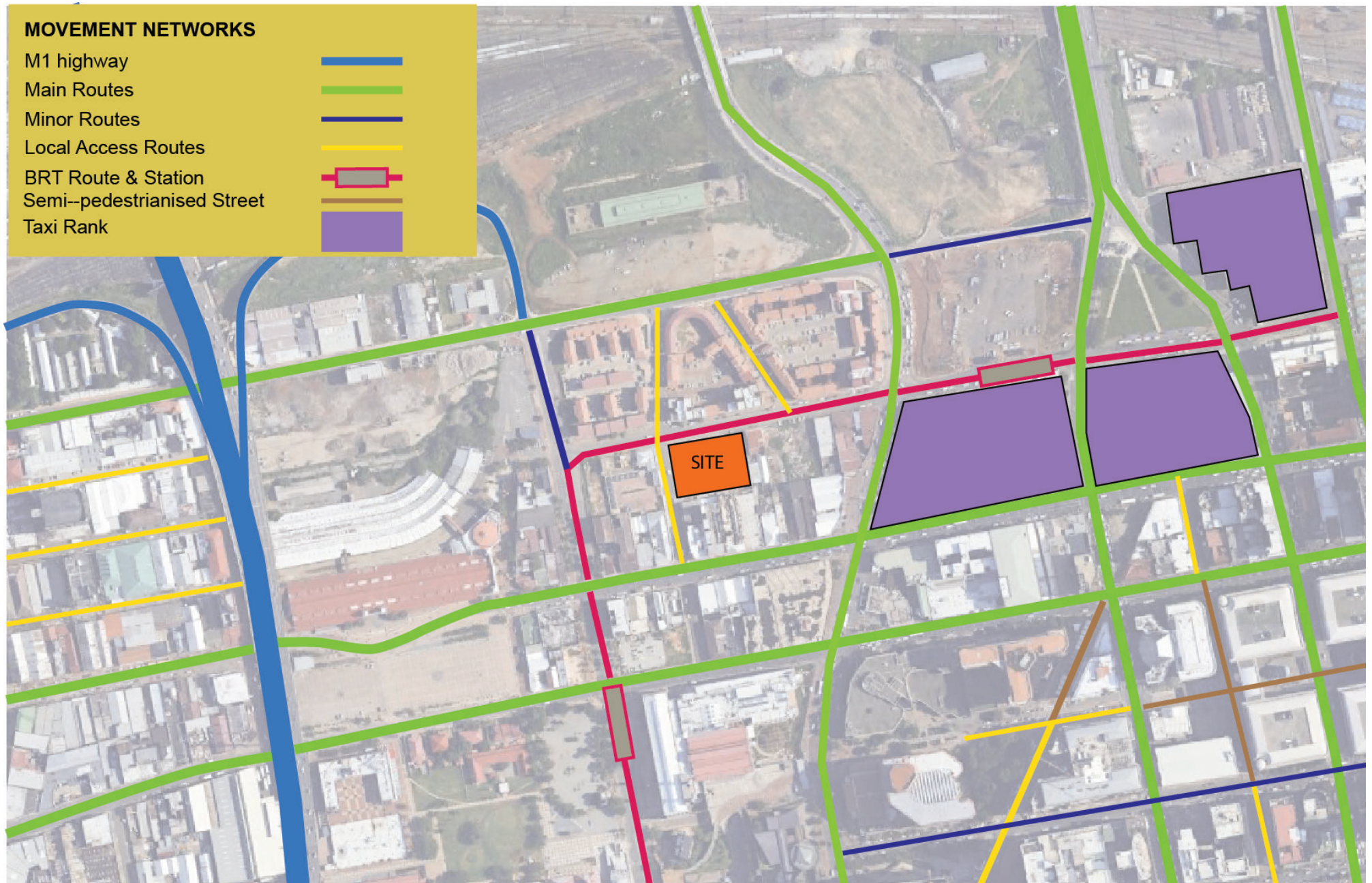


PEDESTRIAN MOVEMENTS

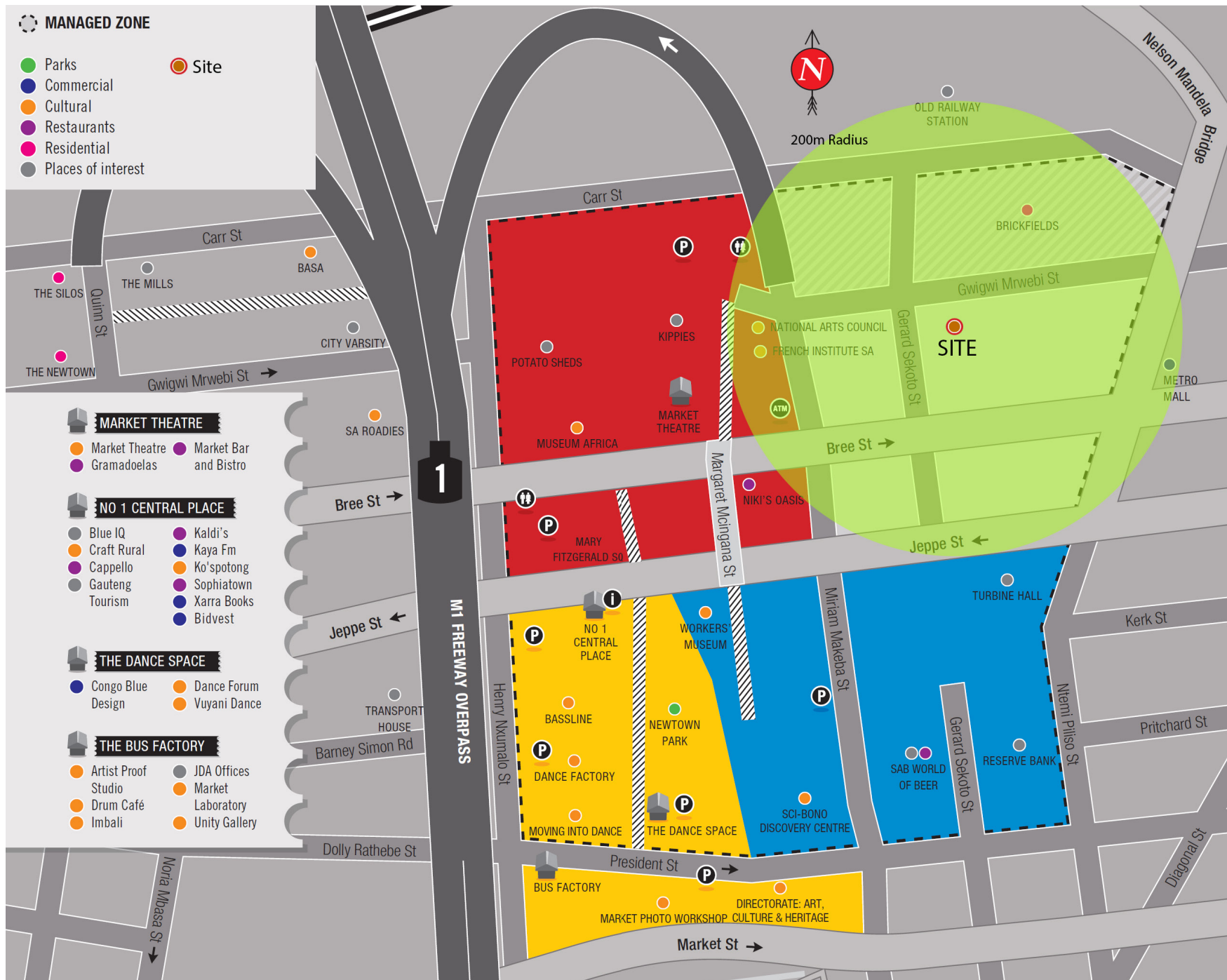
- Very Busy Route
- Busy Route
- Moderate Busy Route
- Parks
- Public Transport Terminals
- New Shopping Centre Development













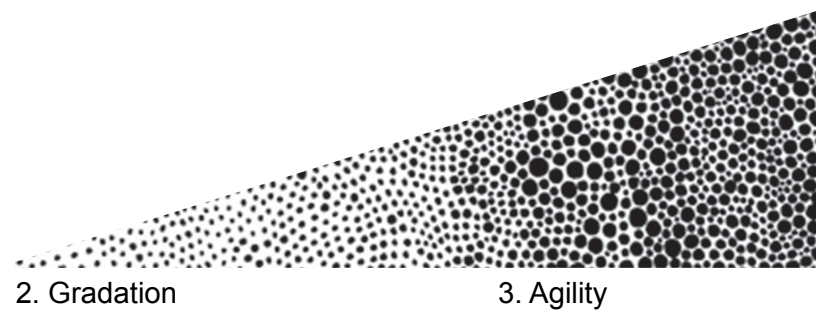
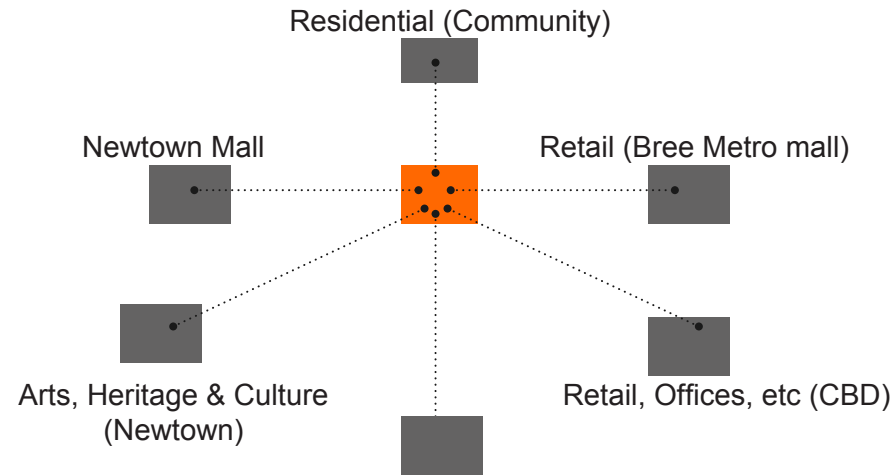
PROGRAMME

	CORE LEARNING SPACES	5195
1	Learning Studios	1340
2	Corridor	2435
3	Computer Room/ Internet Café	110
4	Media Centre	125
5	Library & Reading Lounge	910
6	Toilets for Learners	190
7	Storage	85
	ADMINISTRATION SPACES	345
8	Principal's Office	15
9	Dep. Principal's Office	10
10	Admin Offices	80
11	Reception Area	70
12	Staff Room	80
13	Kitchenette	15
14	Pastoral Care (Counseling & Sick Room)	30
15	Toilets for teachers	45
	EDUCATION SUPPORT SPACES	3545
16	Multi-purpose hall	350
17	Kitchen & Dining Area	430
18	Vegetable Garden	445
19	Outdoor Sports & Play Area	355
20	Courtyard	785
21	Parking	1180
	COMMERCIAL SPACES	200
22	Bookshop & Coffee shop	100
23	School & Artshop	60
24	Storage	40
	TOTAL AREA	9285

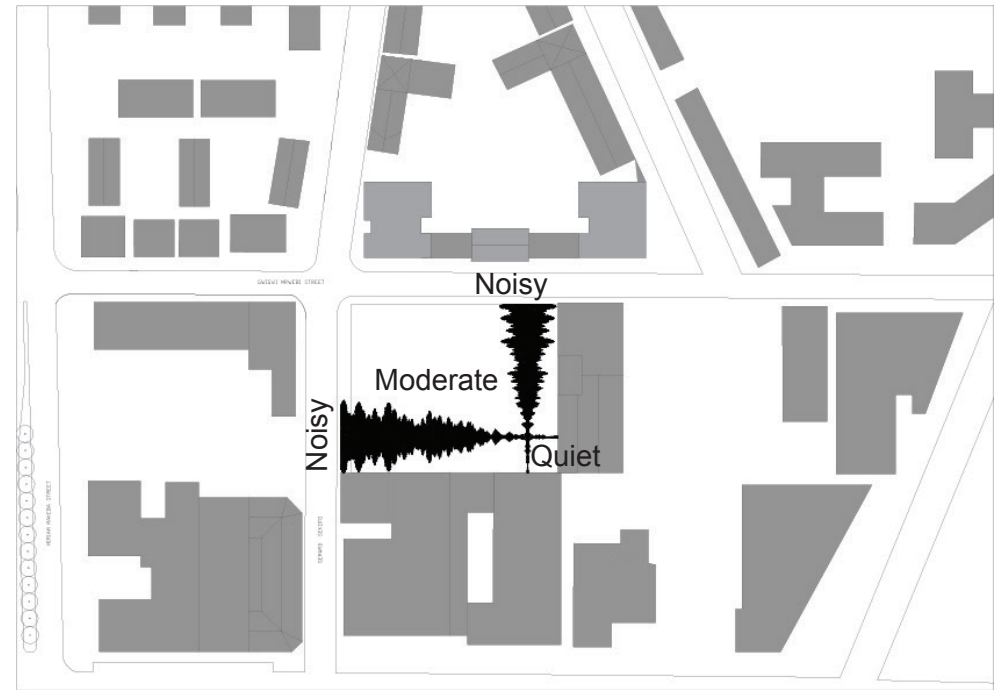


CONCEPT

1. Network - Encourage interconnectedness with its surroundings



SITE ANALYSIS

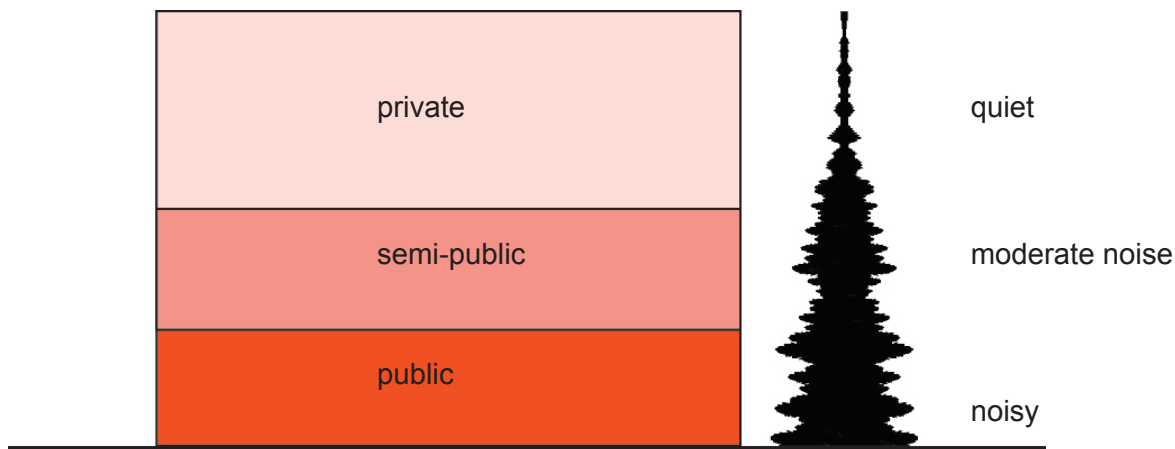


GRADATION

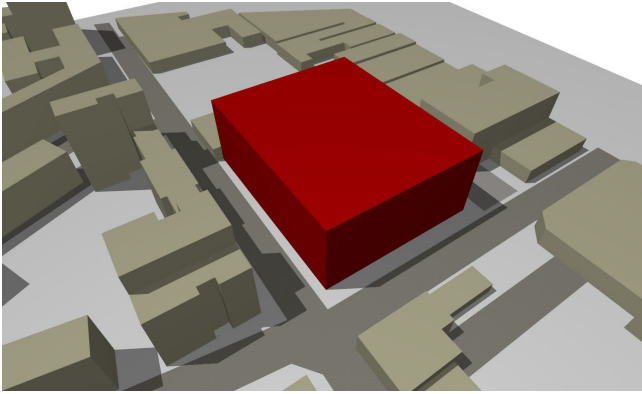
The site is located such that along the street it is very public and the further in you go, it becomes more private.

Along the street edges, the noise levels are quite high and the deeper you go on site, the softer and more quiet it becomes, meaning such spaces would be good for the more quiet space orientated programme like the library.

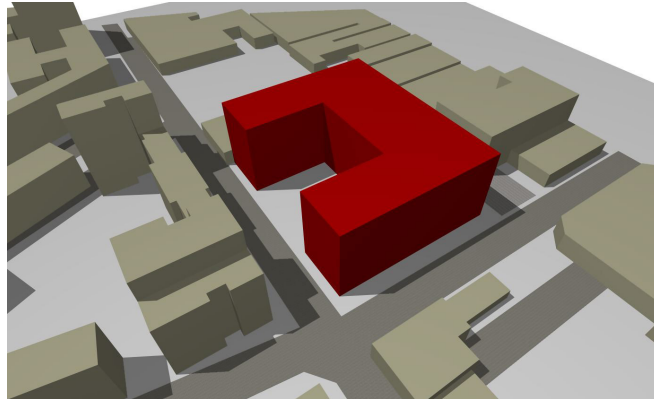
In section, similar gradation happens, as the levels closer to the ground are exposed to the vibrant noise of the city, and the higher up you go, it becomes more private and quiet, making it suitable for spaces that require a lot of focus & analytical thinking.



SITE RESPONSE

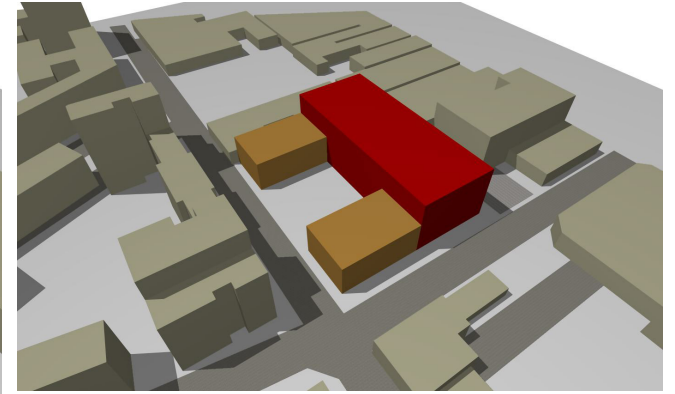


Solid Mass



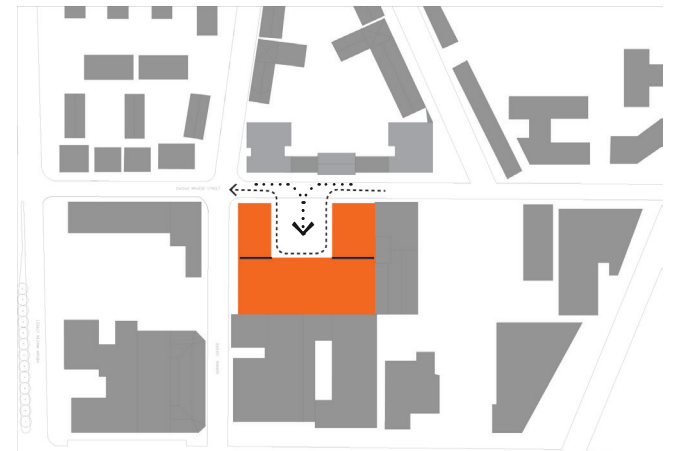
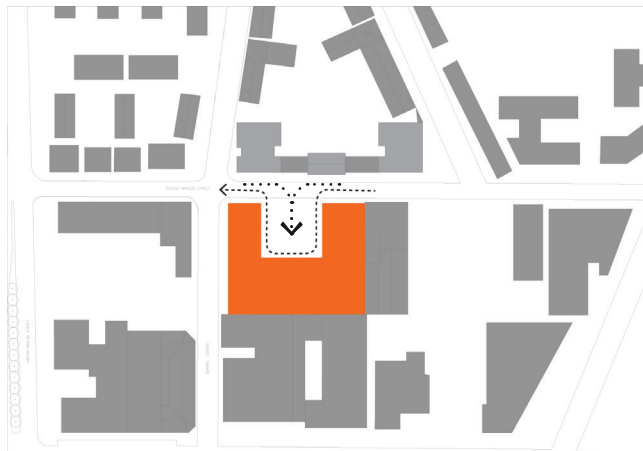
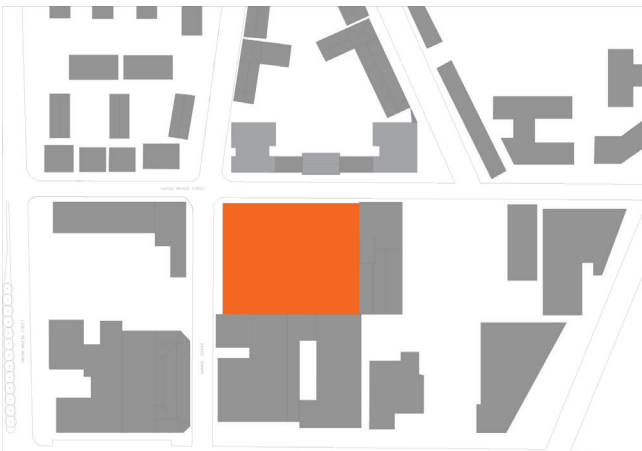
Open Courtyard

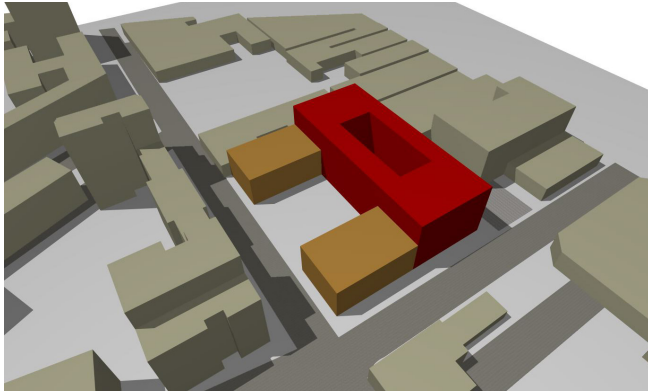
Create a welcoming public space that forms the heart of the building, bringing the community to the school and the school to the community.



Rooftops

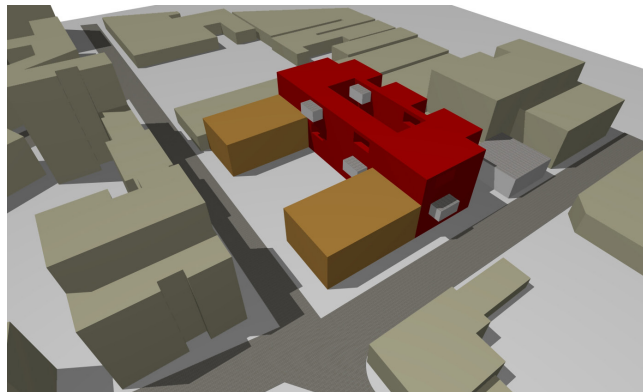
Create rooftop spaces for learners sports area and vegetable garden, to be also used as contemplation space. Maximising the available area in the city.





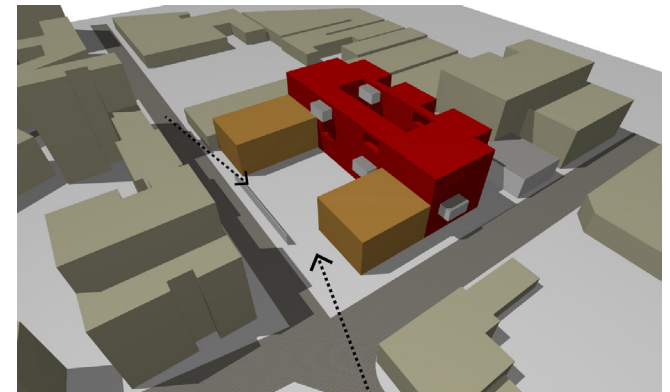
Atrium

Considering that the mass is quite thick, create an atrium that can bring light deeper into the building



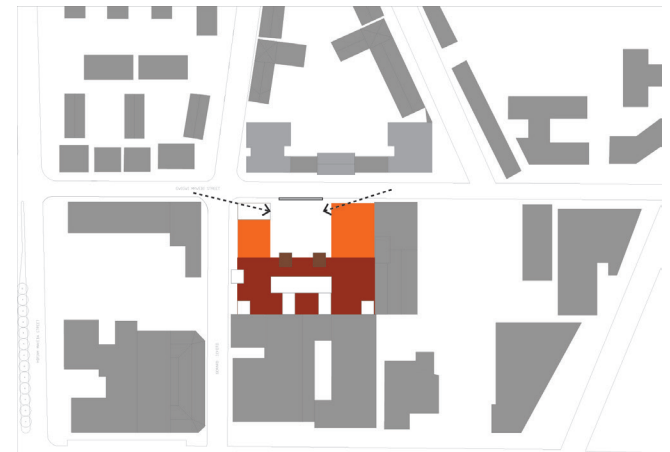
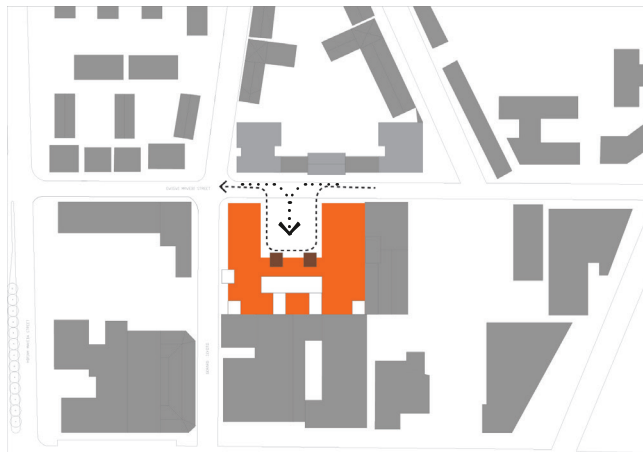
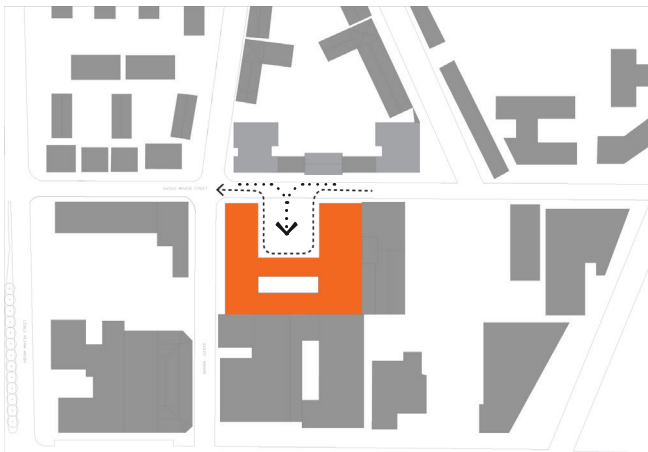
Porosity

Open up the form and create porous spaces to let the building breathe, allowing for cross ventilation, and protruding spaces for balconies and terraces.

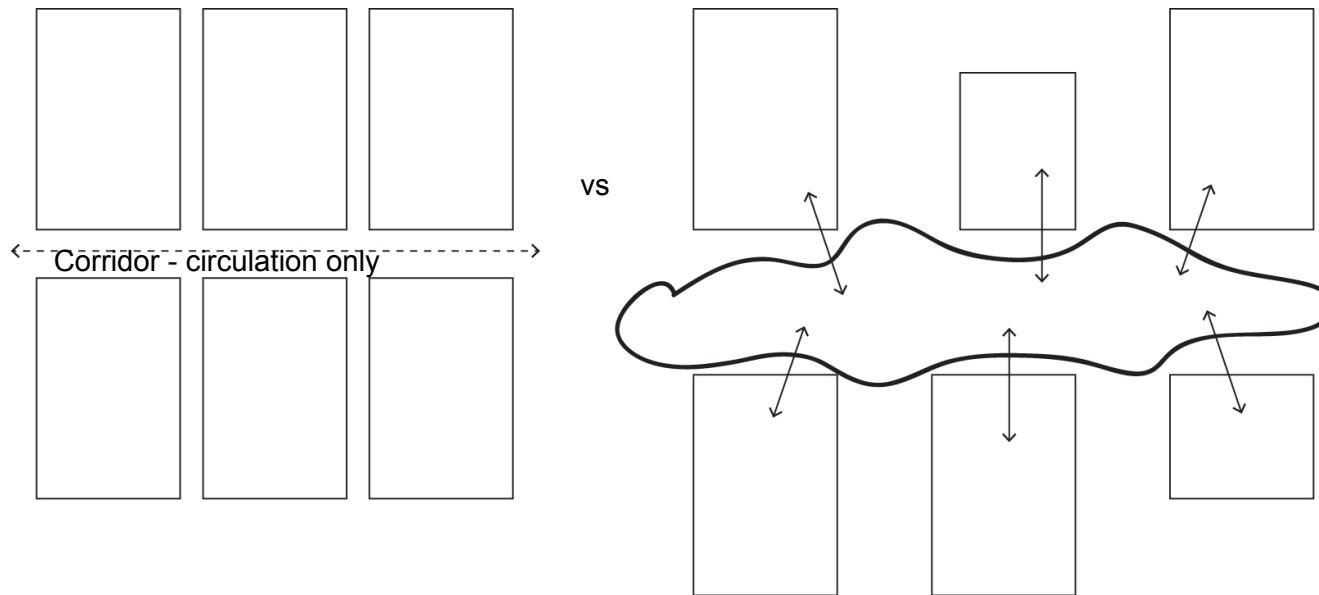


Access

Channel access for the front side spaces to suggest a semi-public courtyard and is not directly accessible from the street



DESIGN DEVELOPMENT

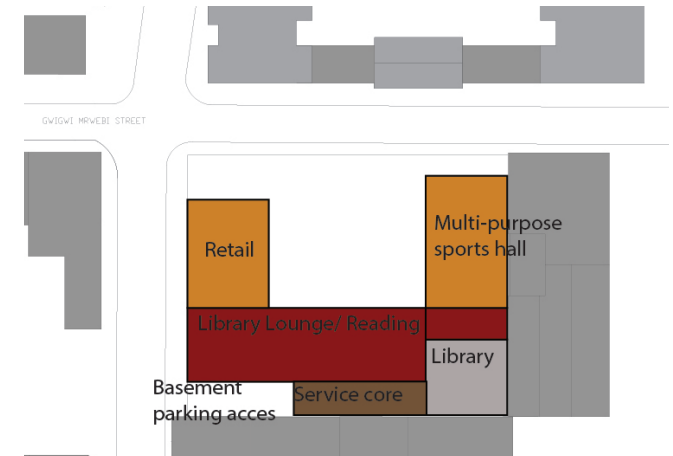
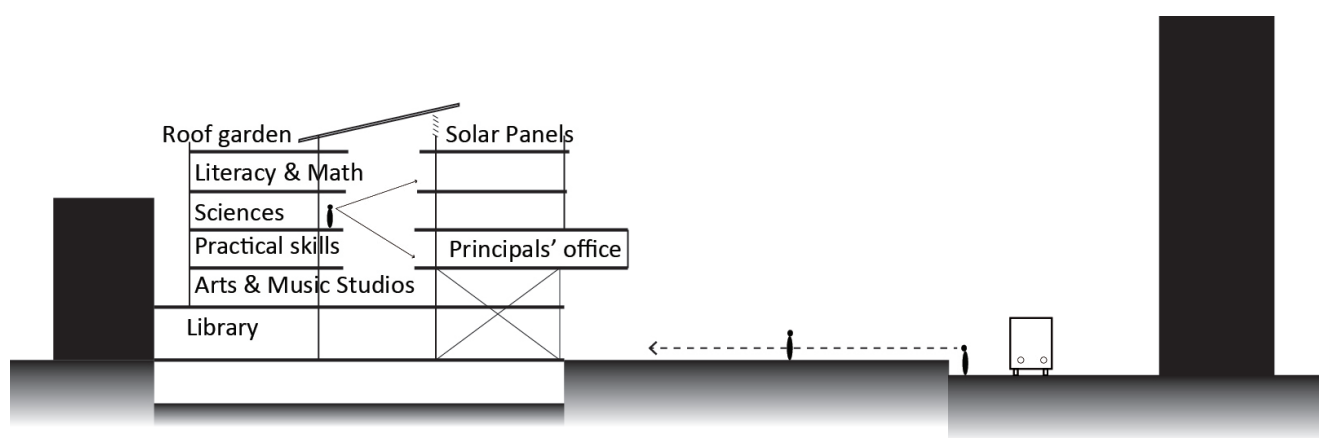


Traditional urban school

- Standardised learning spaces
- Passive learning
- Designed for one kind of teaching - giving a lecture
- School life is separate from real life
- Controlling and teacher based

Expanded Corridor

- Where the magic happens.
- Allows for collaborative learning.
- ACTIVE project based learning
- Becomes an internal street, attached to a variety of spaces.
- Brings in a lot of natural light into the building
- Cross-ventilation
- Main circulation spine
- Social Area
- Stimulates creativity
- Used for exhibitions
- Breakout spaces for spontaneous meetings
- Designed for multiple intelligences
- Student based learning
- School is open to the community for afternoon and evening classes.

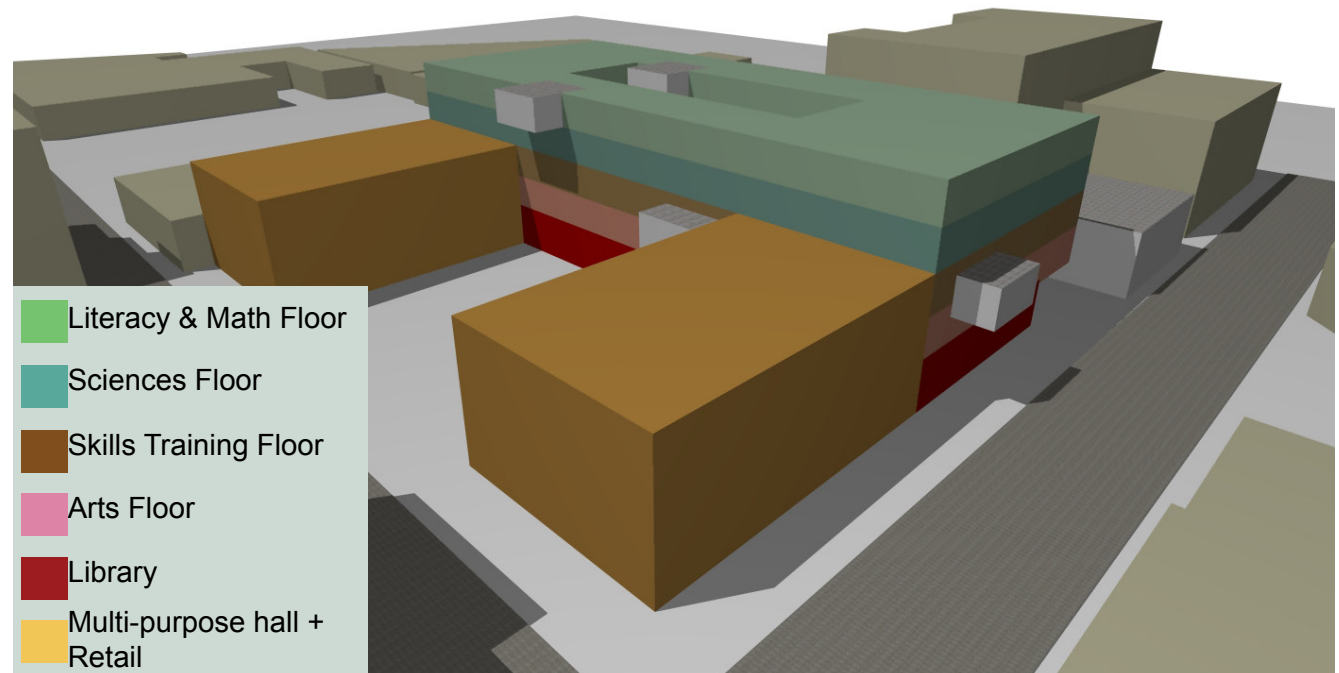


Conceptual Section

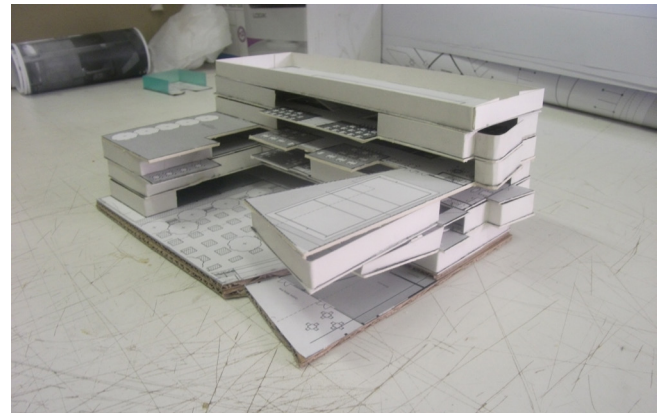
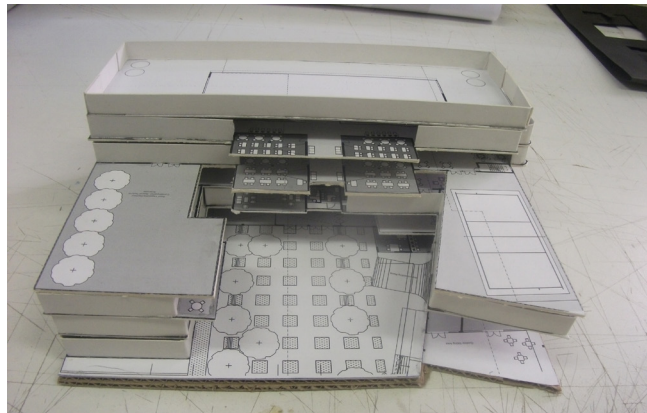
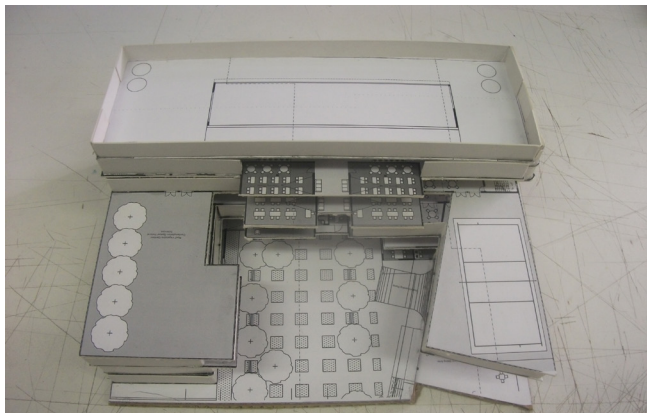
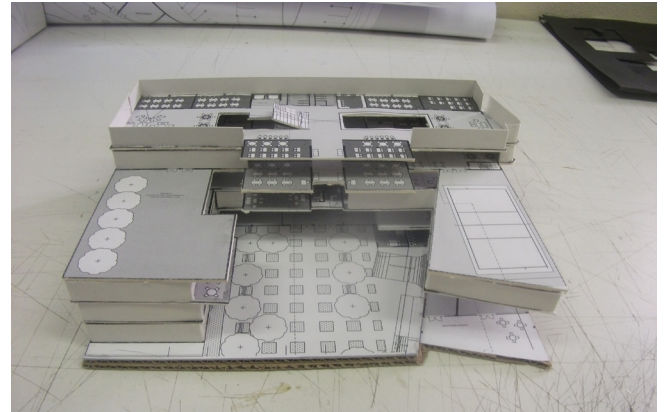
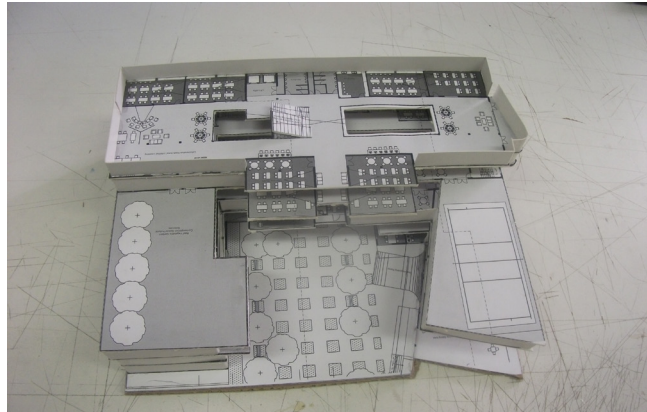
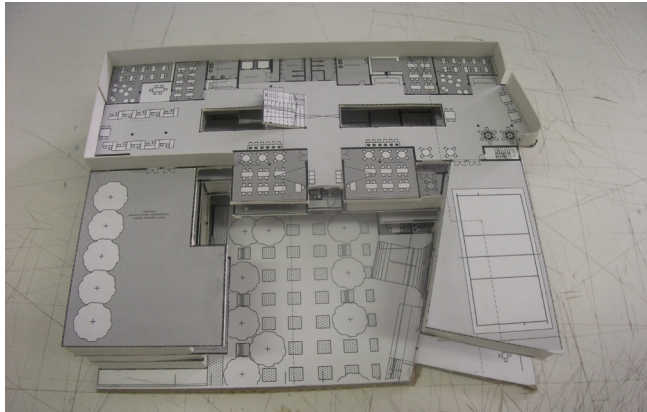
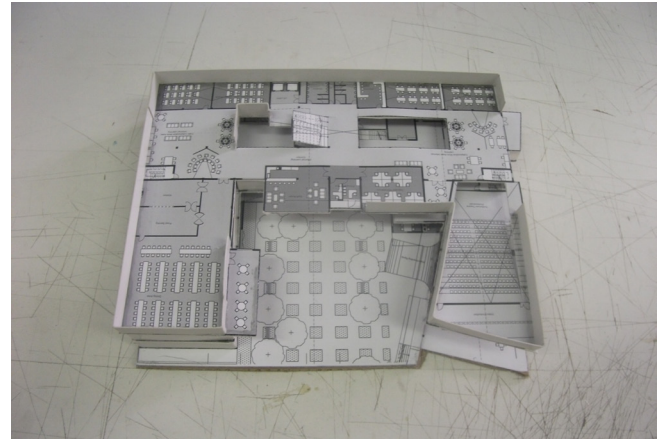
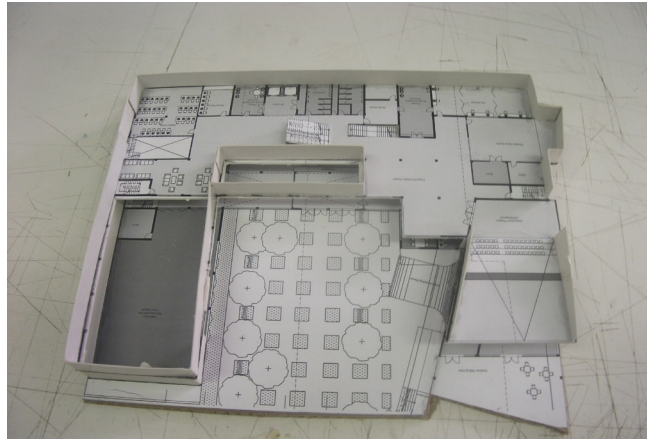
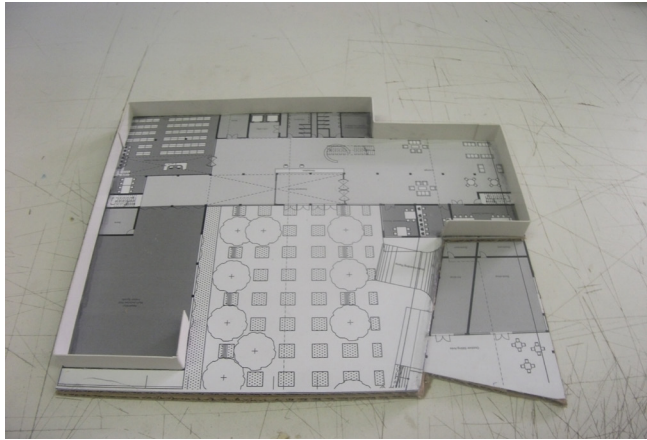
Raised courtyard to suggest a semi-public space

Programming according to intelligences

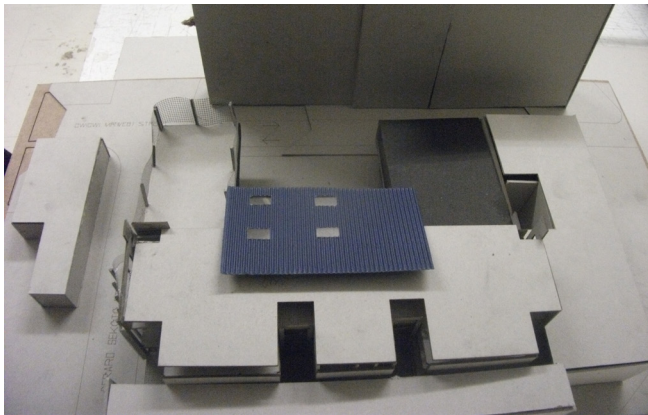
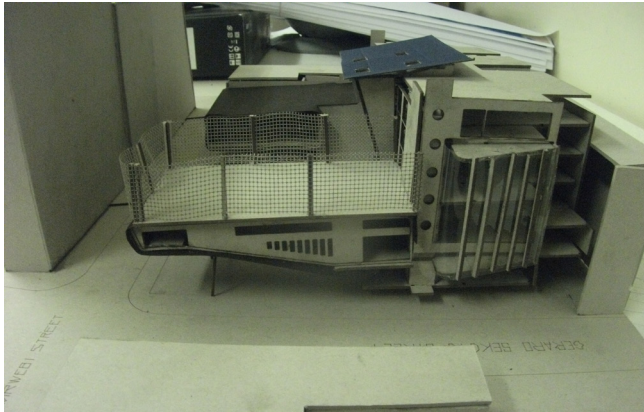
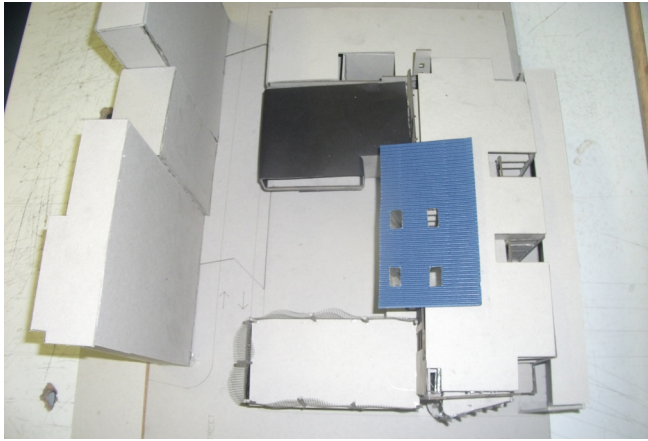
- Library - on the ground to make it easily accessible by the public
- Arts & Music studios on the 1st floor
- Practical skills training - 2nd floor (collaborative work)
- Sciences (Social sciences and natural sciences), with easy access to the contemplation garden
- Literacy & Math- left brain intelligences that need quiet spaces



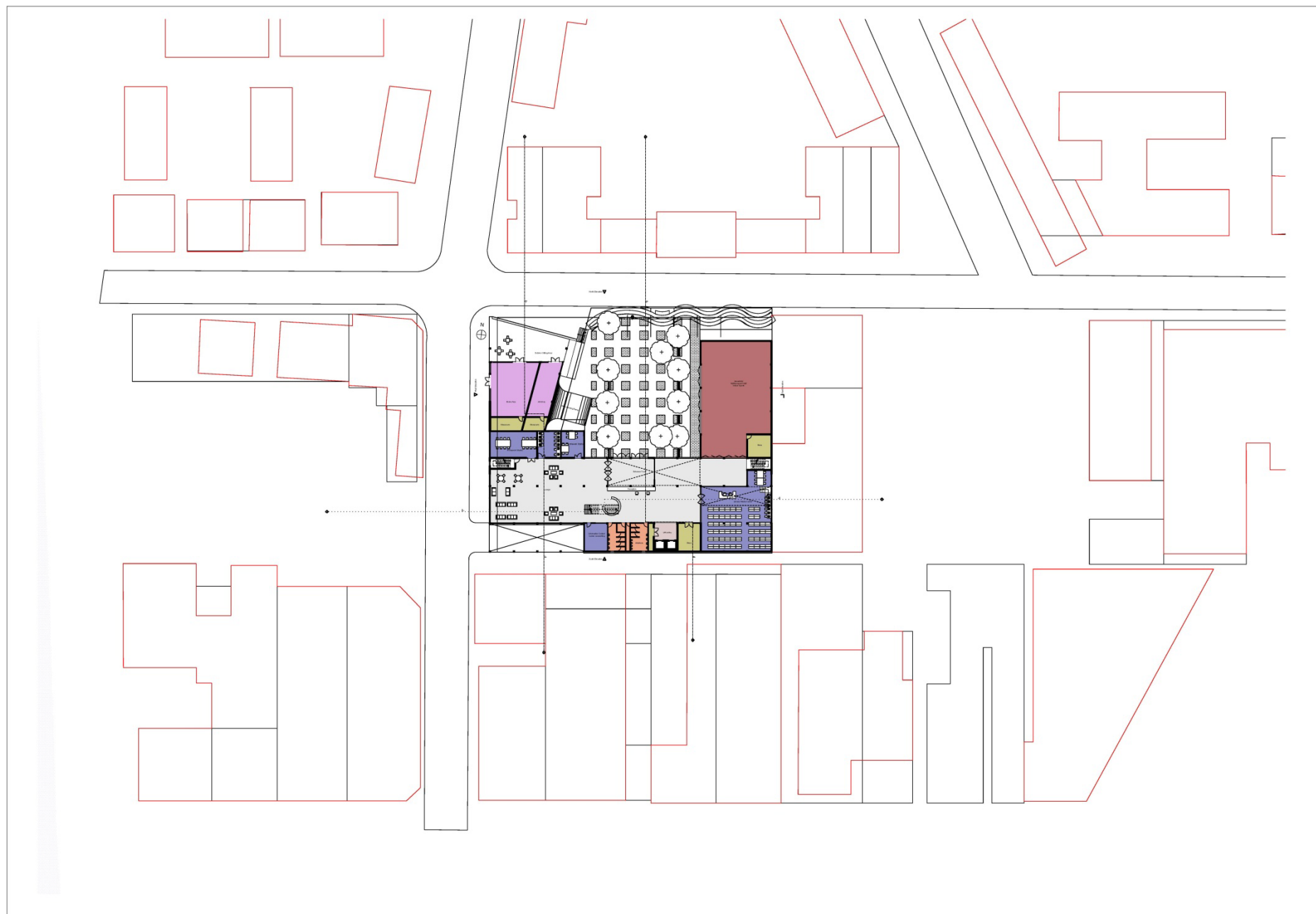
- Literacy & Math Floor
- Sciences Floor
- Skills Training Floor
- Arts Floor
- Library
- Multi-purpose hall + Retail

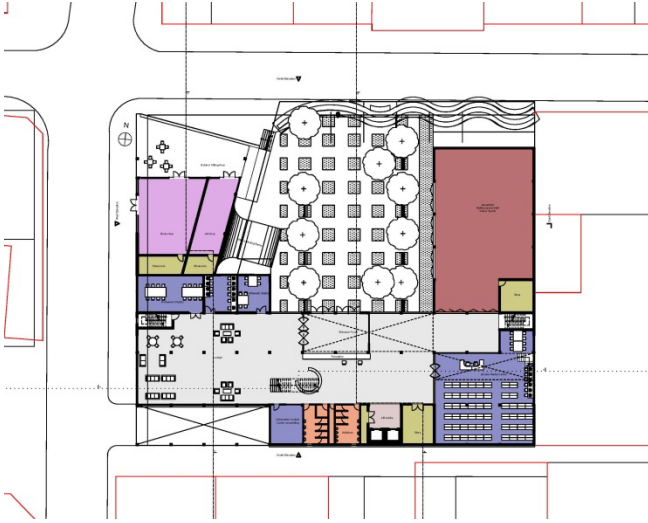
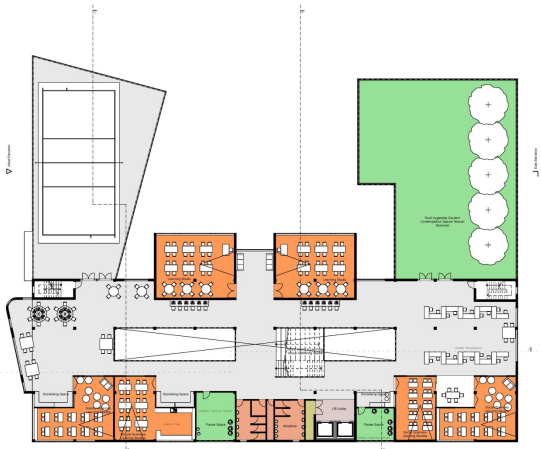
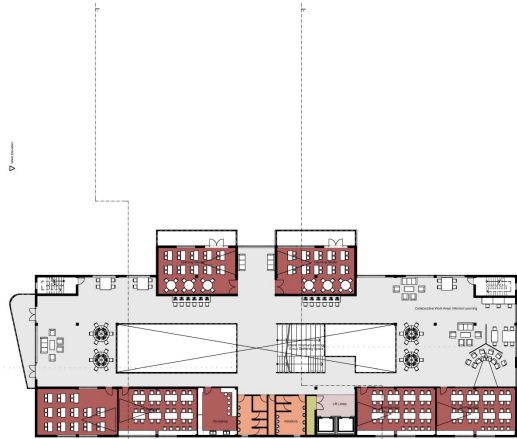
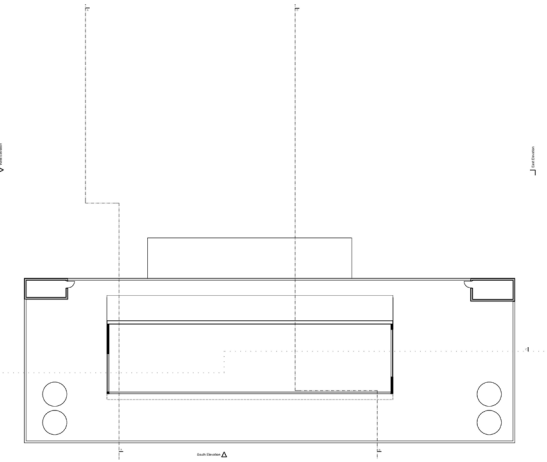
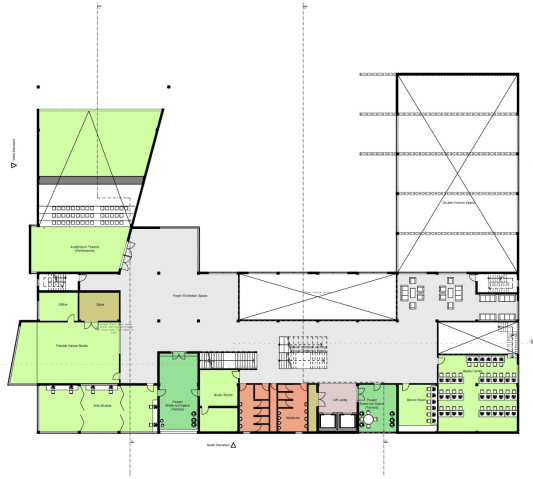
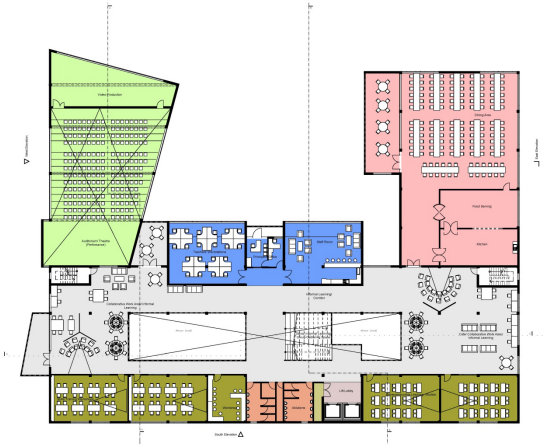


Preliminary Model

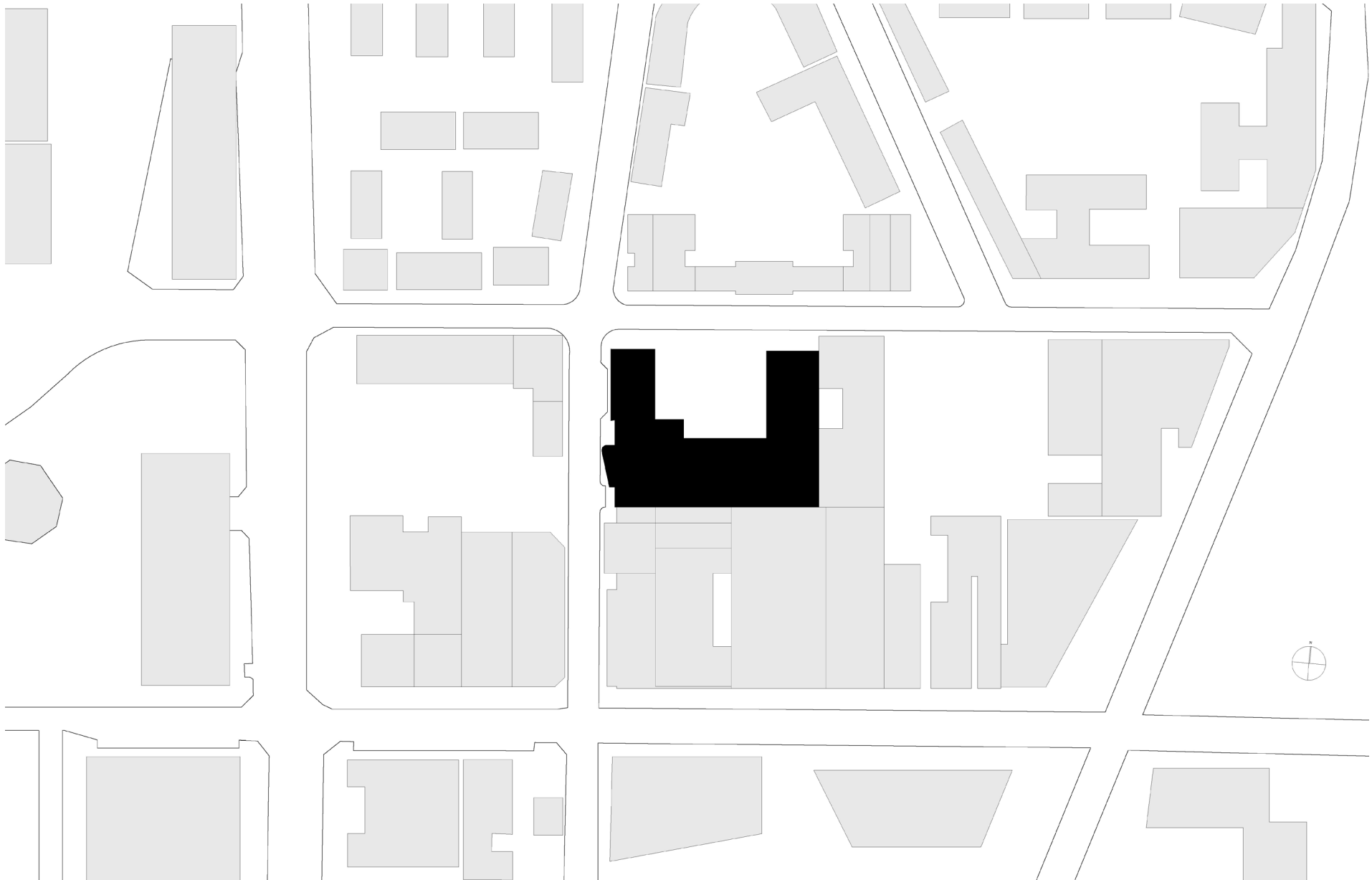


Final Model

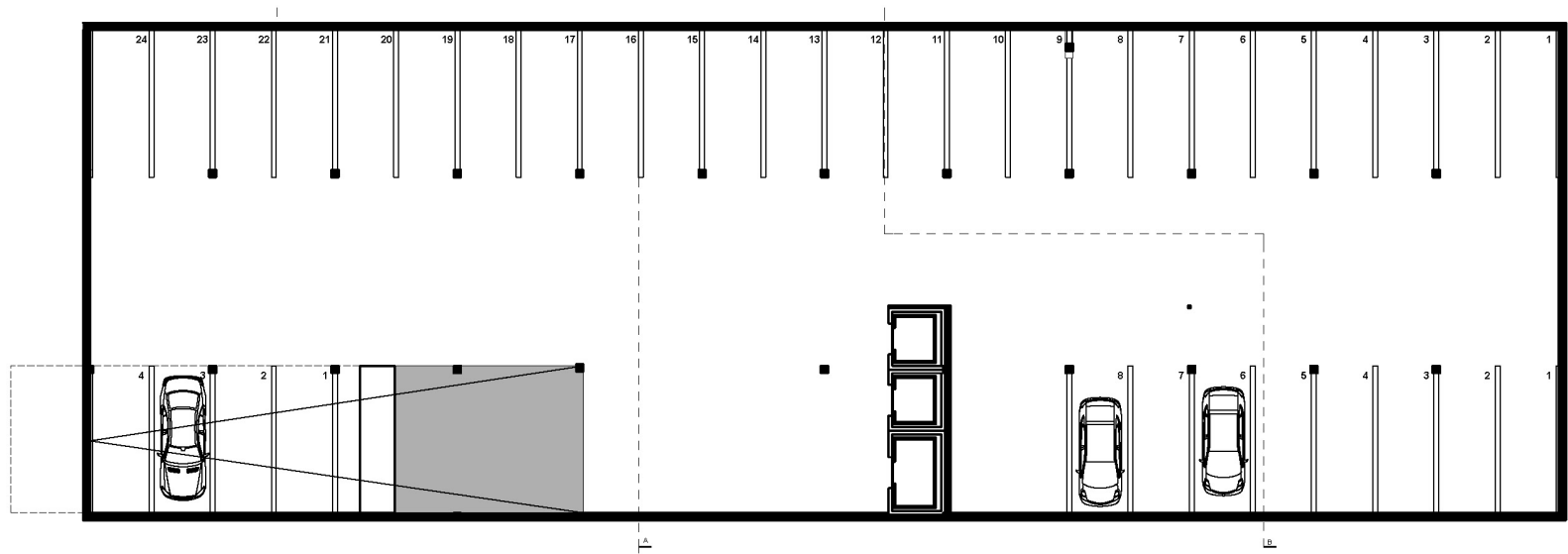




FINAL DESIGN DRAWINGS



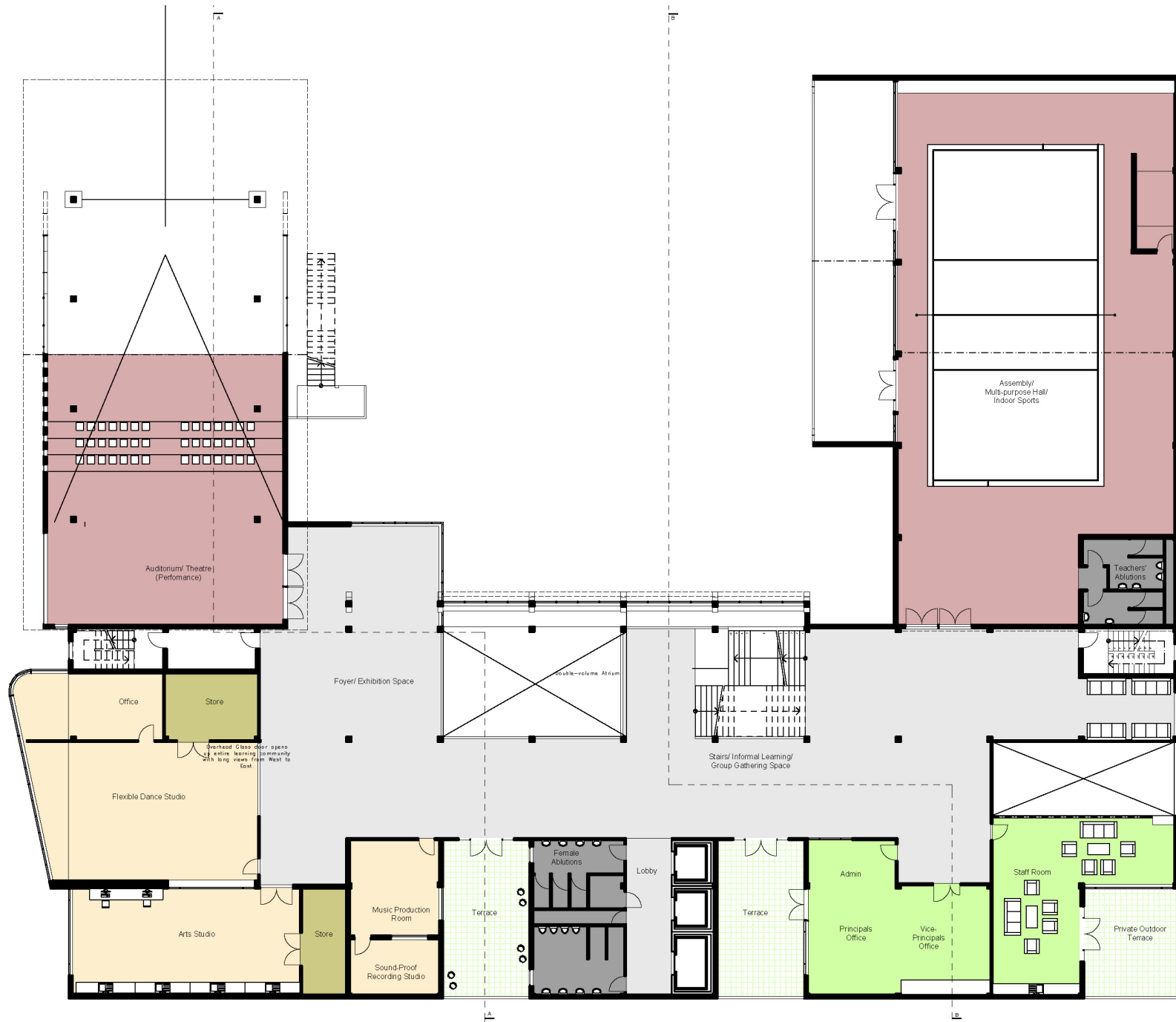
Site Plan



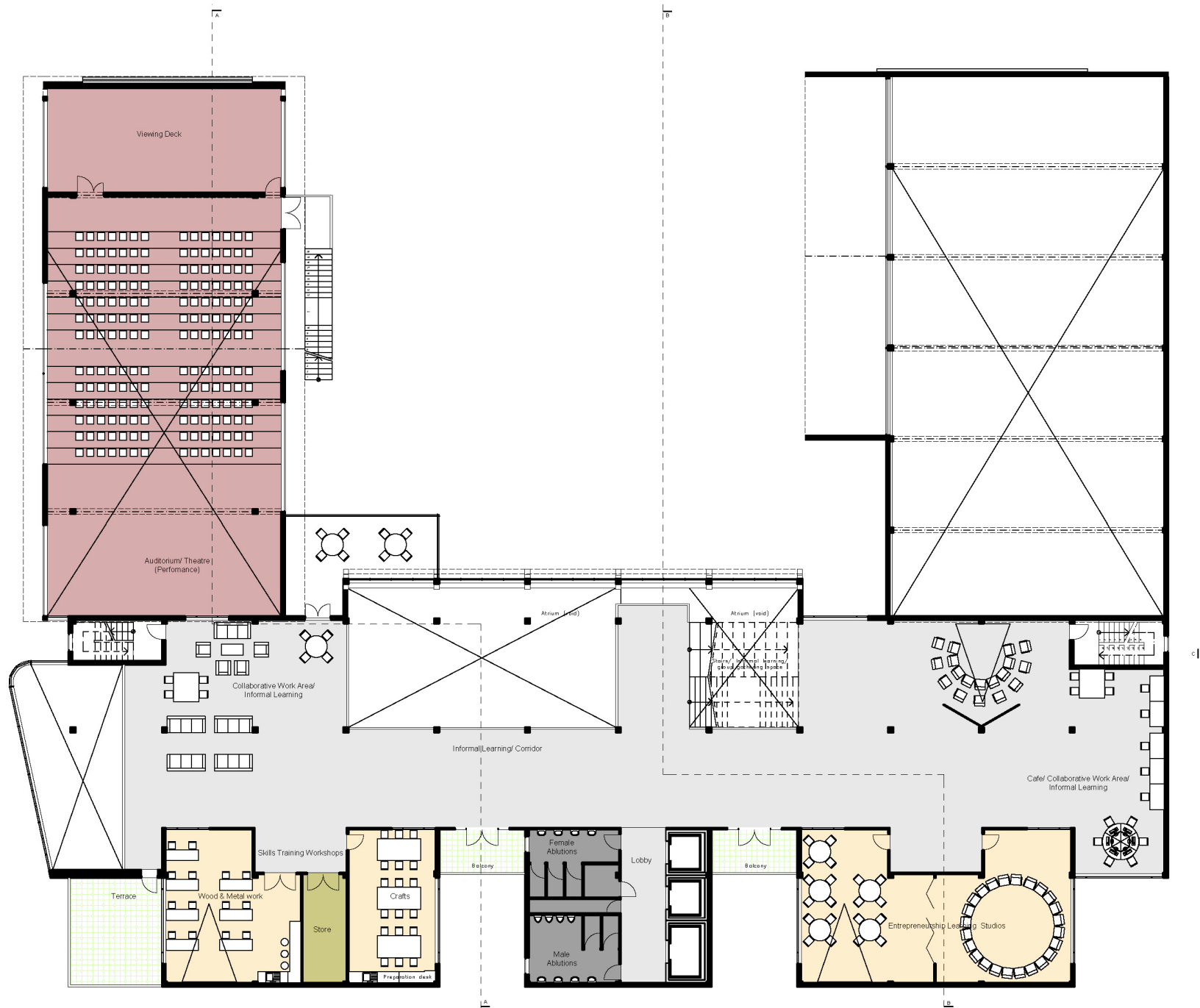
Basement Floor Plan



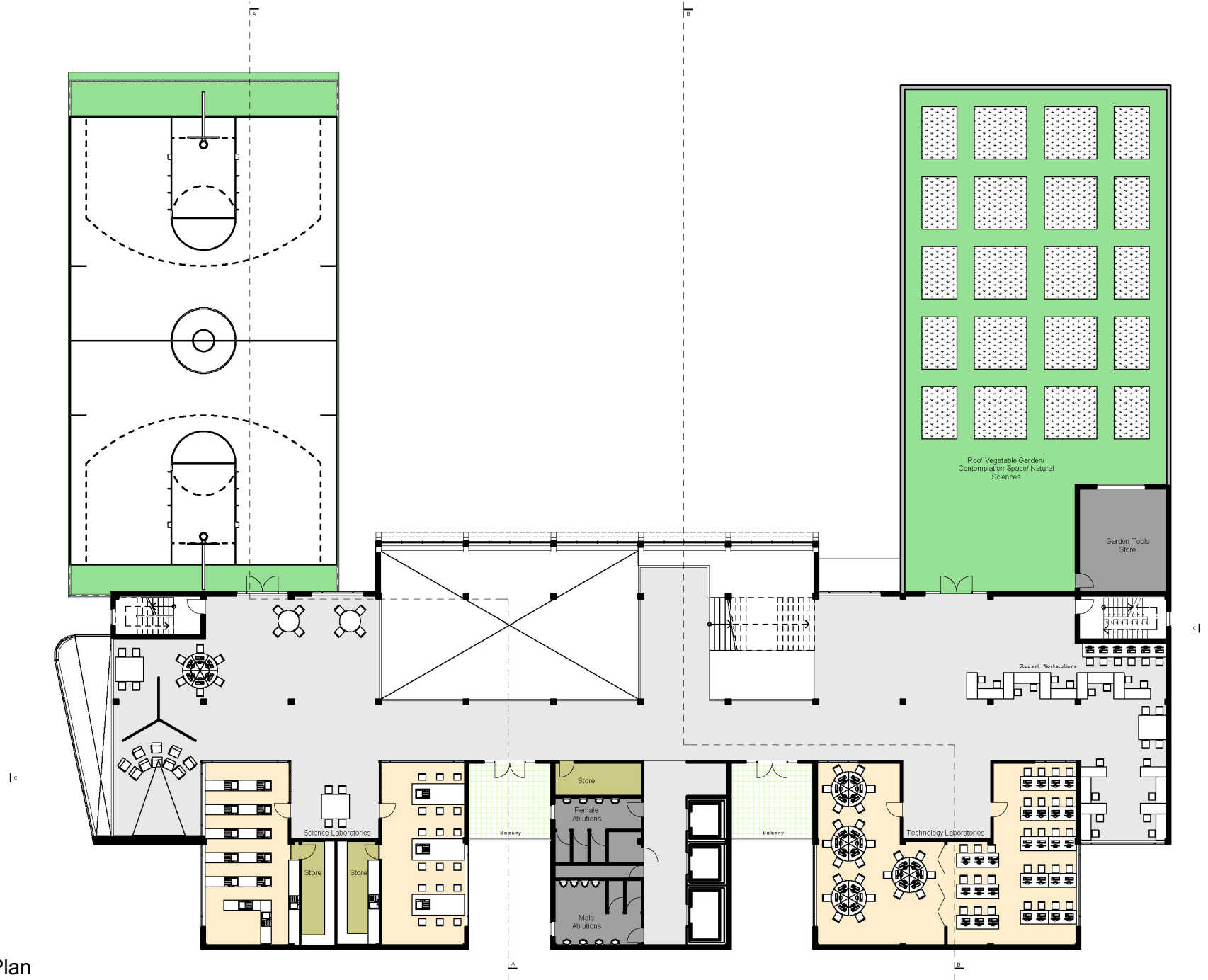
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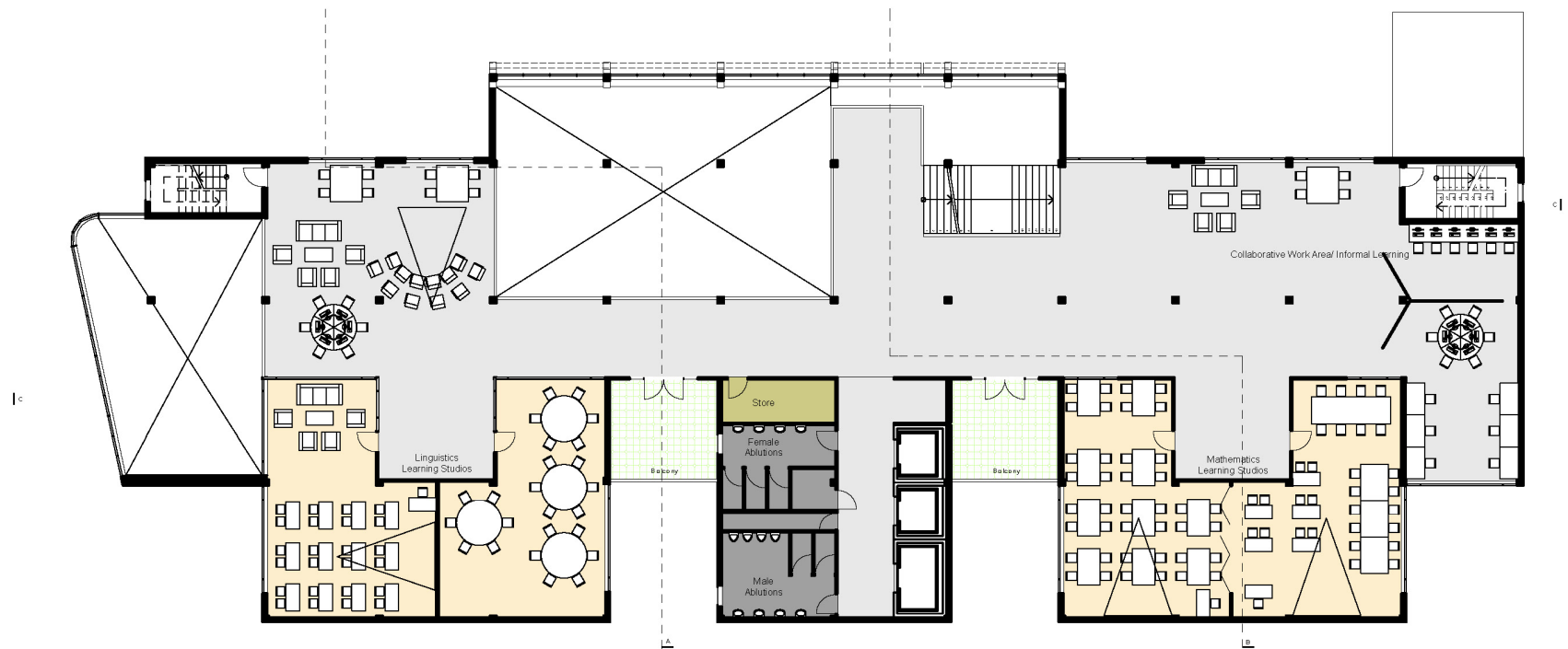
1st Floor Plan



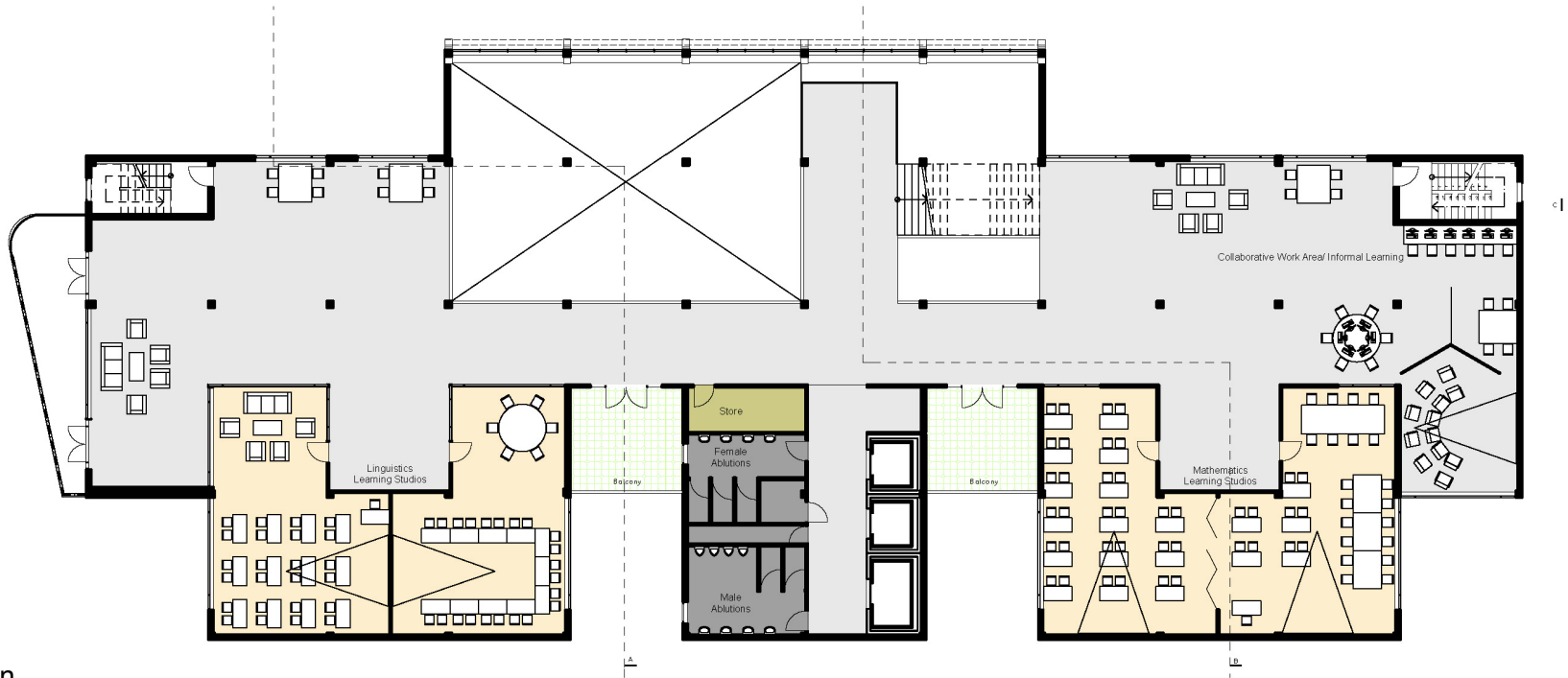
2nd Floor Plan



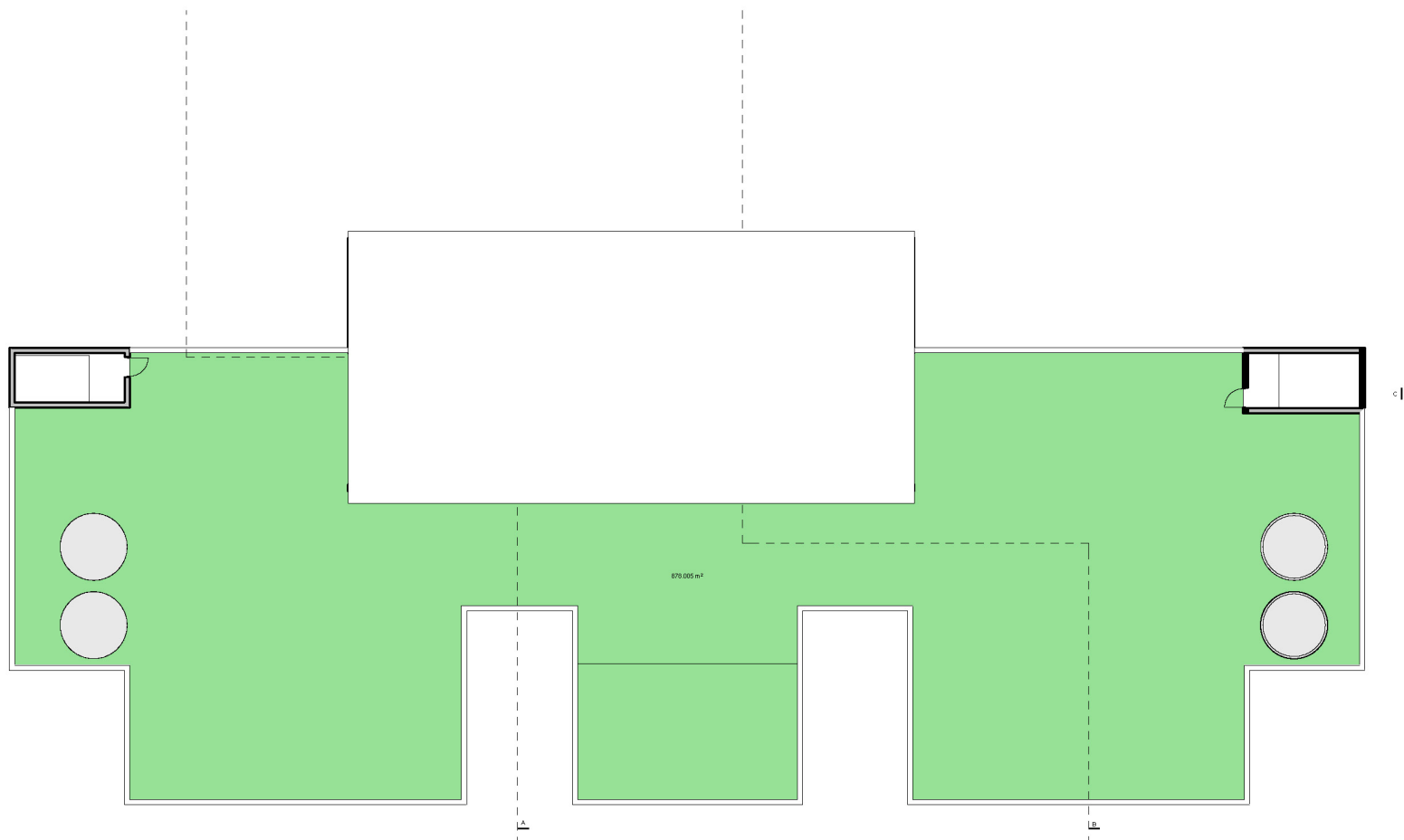
3rd Floor Plan



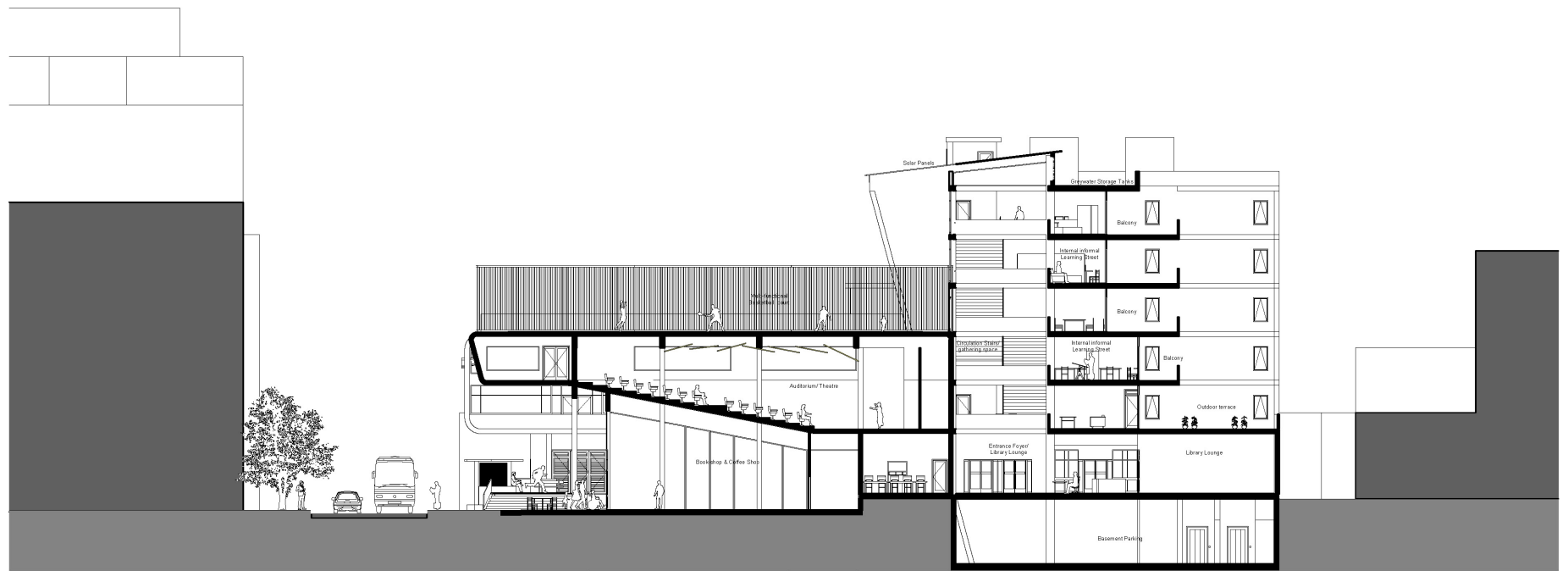
4th Floor Plan



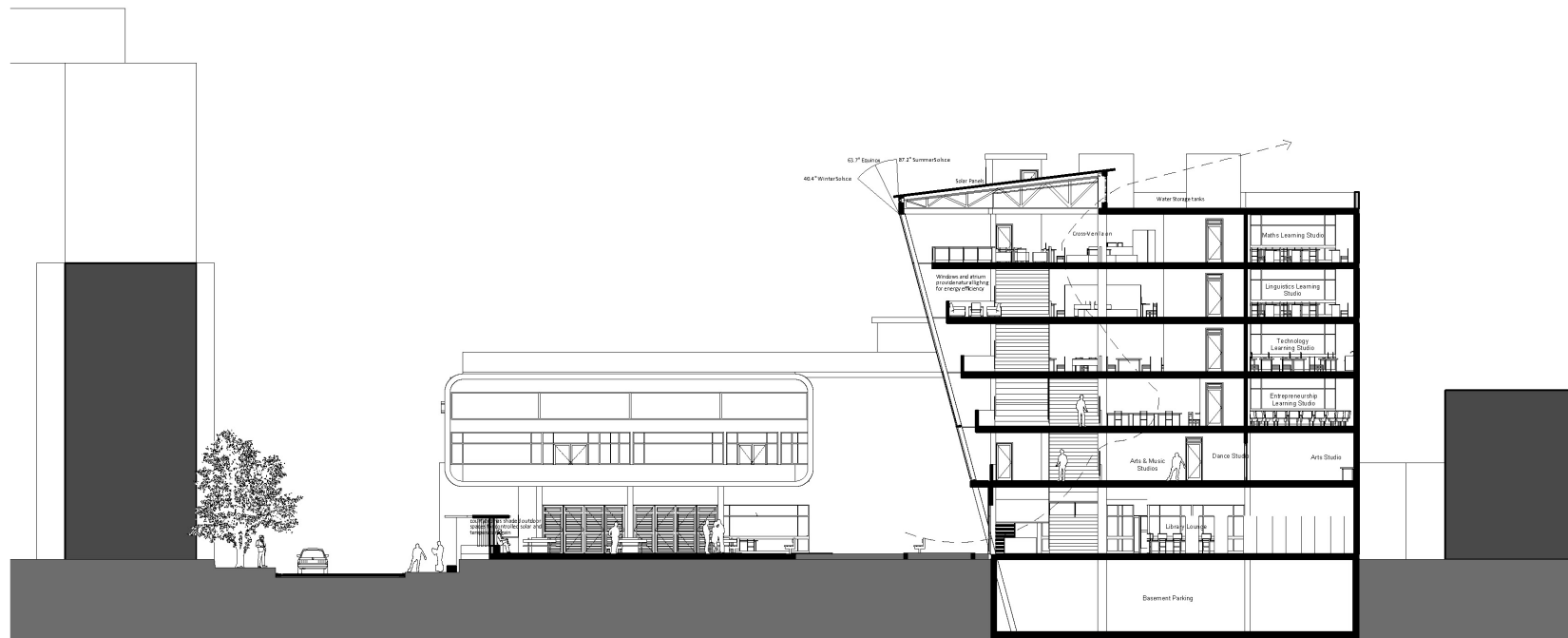
5th Floor Plan



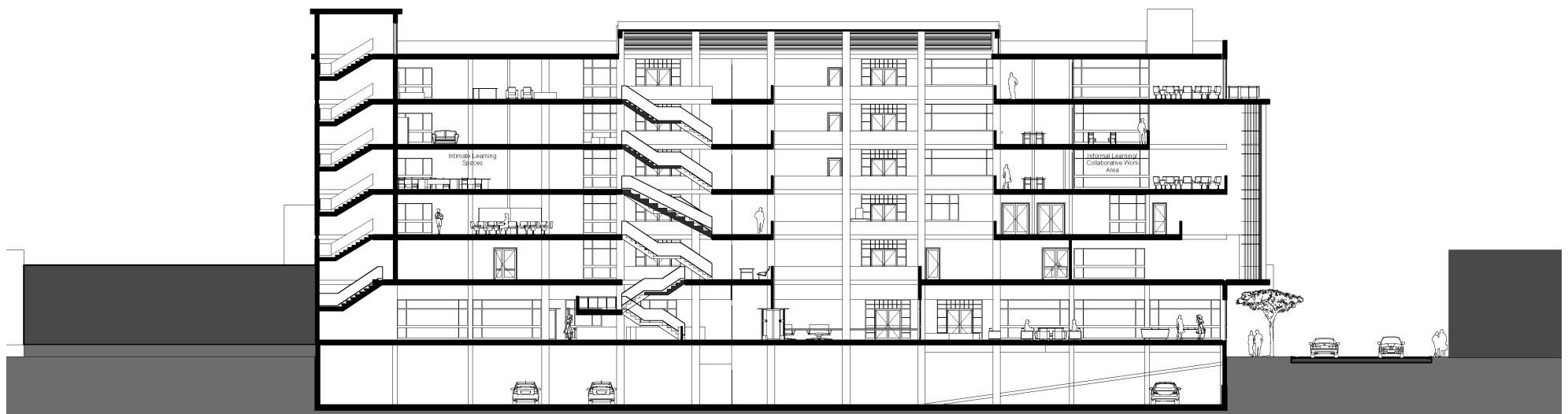
Roof Floor Plan



Section A-A



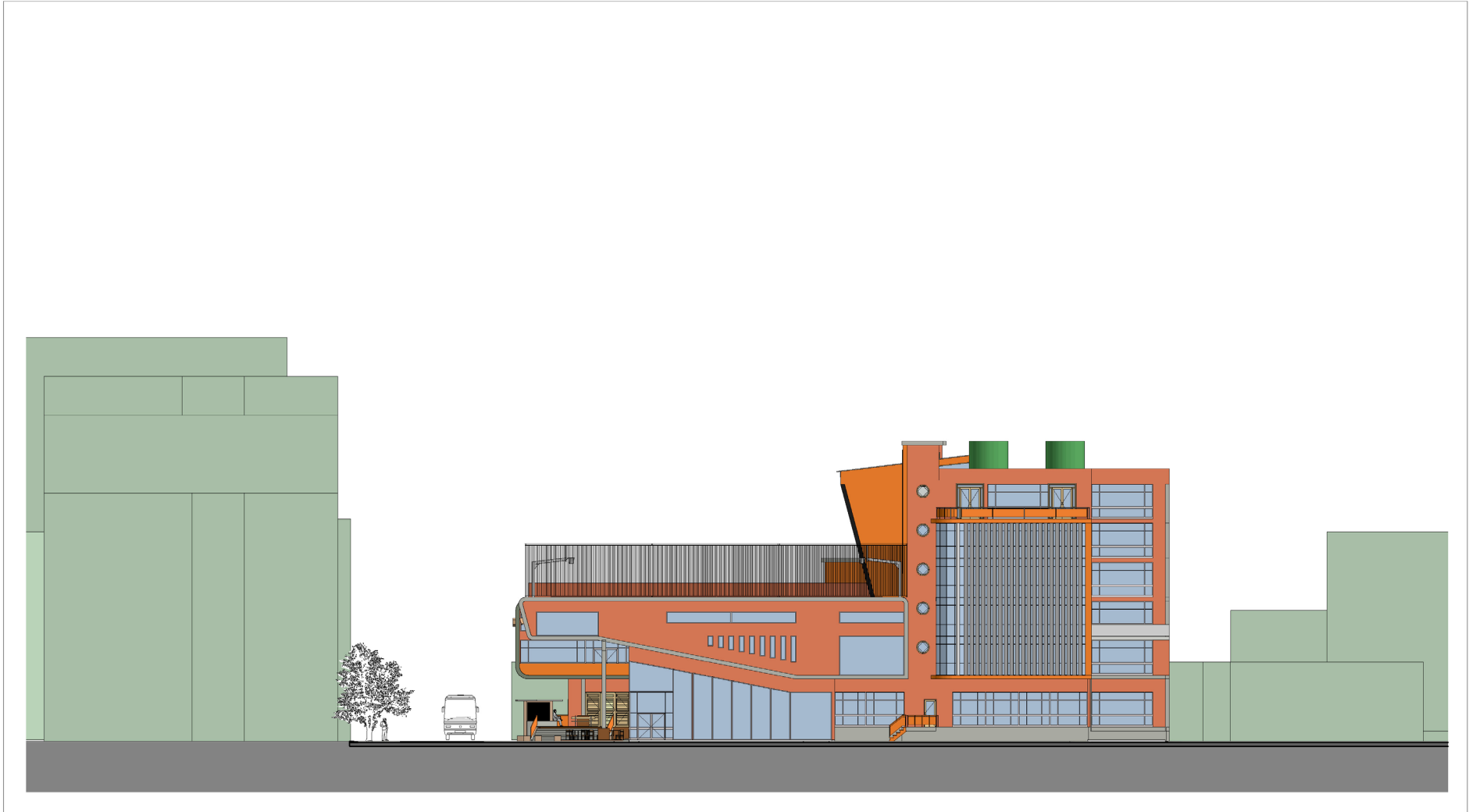
Section B-B



Section C-C



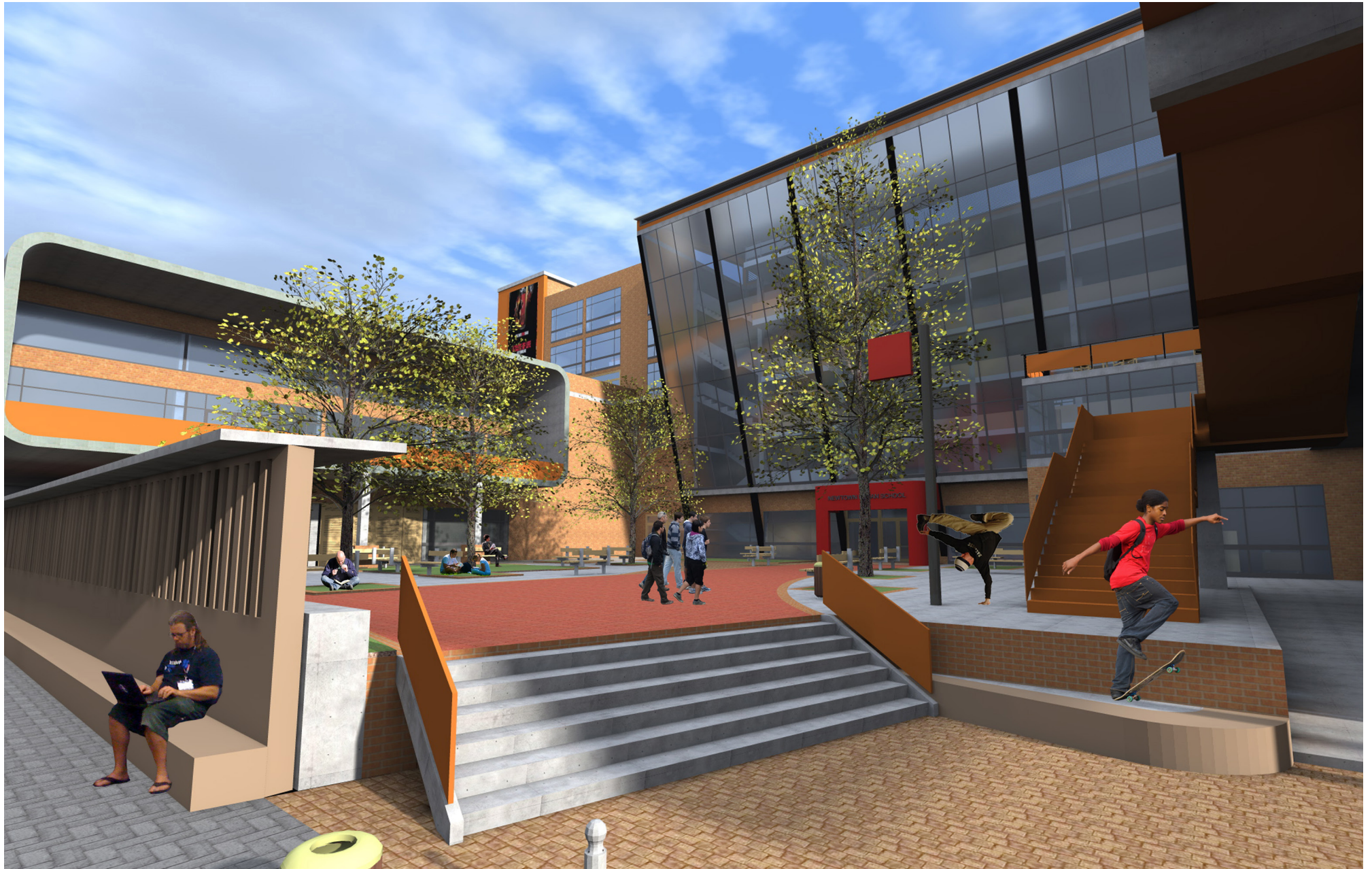
North Elevation



West Elevation



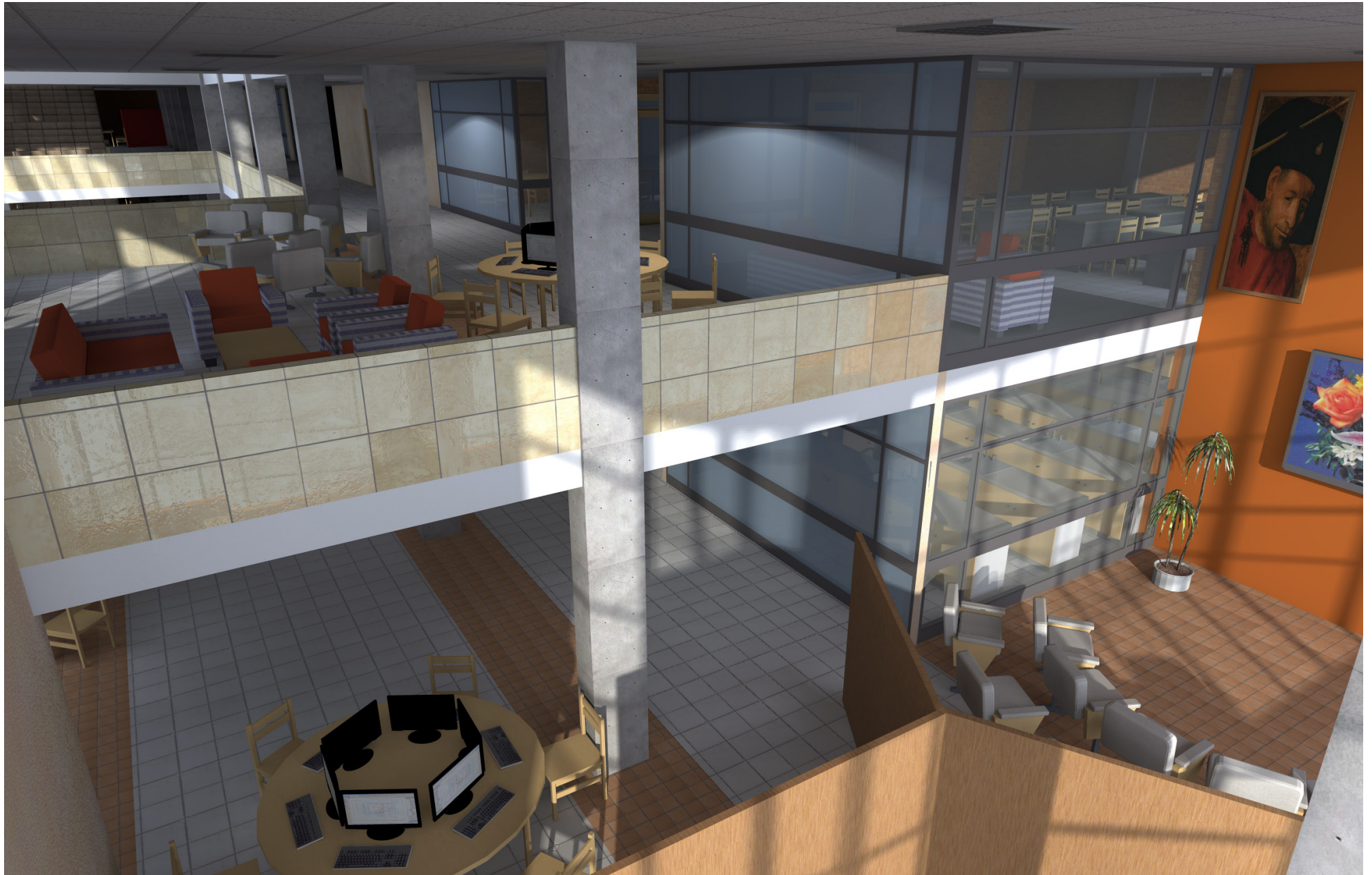
Street view from corner Gwigwi Mrwebi & Gerard Sekoto Streets



School entrance view towards the courtyard



Cut-away section showing atrium and internal spaces

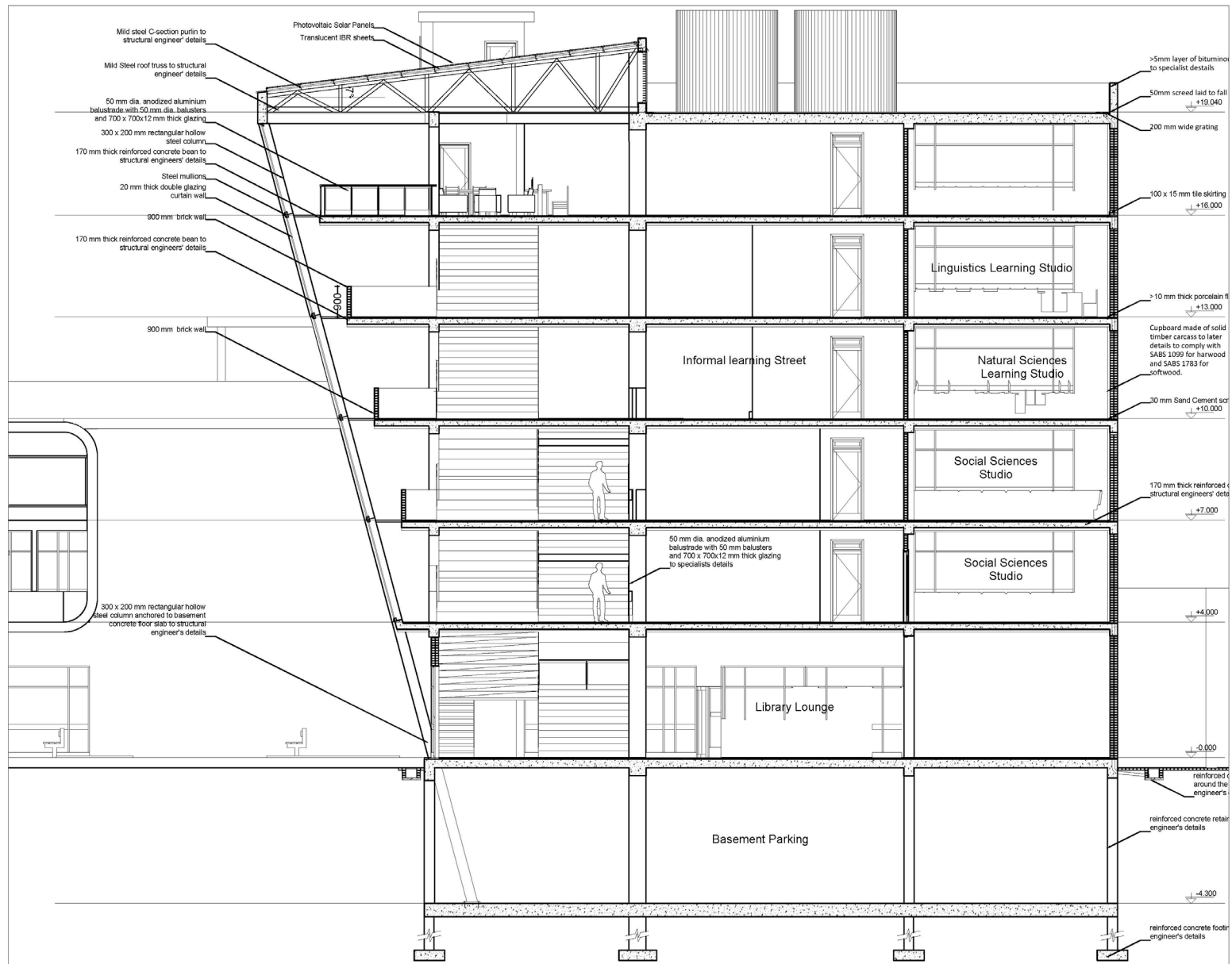


Internal view - flexible informal learning space



Public square/ courtyard view from the auditorium stair

TECHNOLOGY



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