COMPARATIVE ANALYSIS OF TYPOLOGIES WITHIN EXTENSION SIX

	TYPOLOGY 1	TYPOLOGY 2	TYPOLOGY 3	TYPOLOGY 4
1. SOCIO-ECONOMIC STATUS	• All single nuclear families reside here. • Average family size is 4.5, ranging between 4 and 6. • One household has one tenant. • Average household size is 4, ranging from 3 to 6. • The average source of income is one. • Types of employment reflect an equal distribution between part-time and full-time employment. • On average the number of expense amount to 10. • Household A is the only one able to save.	• The family types are divided between two single nuclear families and one single nuclear family with extended family members. • The average family size is 5, ranging from 4 to 7. • Households A and C have tenants. • Total number of tenants is 8. • The average household size is 8 ranging from 4 to 12. • Average number of sources of income is 5, ranging from 1 to 8. • The type of employment is characterised mainly by full-time and part-time employment with one entrepreneurial/informal activity. • The average number of expenses is 11. • Only one household managed to save.	• There are three different family types: woman-headed and extended, single nuclear and extended, single nuclear family. • The average family size is 8, ranging from 7 to 10. • One household has one tenant. • The average household size is 8, ranging from 5 to 10. • The average number of sources of income is 3, ranging from 2 to 3. • Full-time employment is in the majority with two cases for entrepreneurial/informal activity. • The average number of expenses is 11. • Only two households are able to save.	• All families are single and nuclear. • The average family size is 6, ranging from 4 to 8. • No households have tenants. • The average household size is 6, ranging from 4 to 8. • The average number of sources of income is 2. • There is an even mix of part-time, full-time and entrepreneurial/informal employment. • The average number of expenses is 11. • All households are able to save.

2. ADDITIONS	• Initial structures were two thirds of the time a toilet that was placed at the back of the erven in either corner.
	• Seven additions have been made.
	• Of the seven additions, six were temporary structures and one was a formal structure.
	• Household A made one addition whilst households B and C made three.
	• All temporary structures were made of temporary materials and formal structures out of permanent materials.
	• Where information (however, limited) was available, the following was noted:
	  ○ Materials were sourced from within and outside Mamelodi.
	  ○ Materials that were sourced from within Mamelodi were for the construction of shacks (temporary structures). The construction of permanent structures required the acquisition of materials from outside Mamelodi.
	  ○ Costs range between R450 – R1300 with an average of R875.
	  ○ Savings was used in most cases to fund the additions.
	  ○ The use of private contractors and owner's skills in the construction of additions appear equally distributed between permanent and informal structures.
	  ○ The time lapse between additions appears to be between one and two years.
		• All initial structures were toilets situated at the back of the erven on either left or right corners.
		• A total of 11 additions have been made
		• All additions were shacks constructed of temporary materials.
		• Household A made three additions, household B made two and household C made six additions.
		• Where information (however, minuscule) was available, the following was noted:
		  ○ Materials were sourced from within Mamelodi.
		  ○ Costs range between R870 and R3300 with an average of R2085.
		  ○ Credit was used as funding.
		  ○ In most cases, private contractors were used. Owners either used their skills or were assisted in two cases.
		  ○ The time lapse between additions range from a few months to three years.
			• Initial structures were mostly toilets. One household had constructed a shack initially.
			• 9 additions have been made of which 5 are shacks (temporary materials), 1 is a rondavel, and 3 are completed homes (permanent materials)
			• Household A constructed 3 additions, household B constructed 2 and household C, 4 additions.
			• Where information (however, limited) was available, the following was noted:
			  ○ Materials were acquired from a number of sources, i.e. some were given to a household, others purchased from within Mamelodi, and some purchased from outside Mamelodi.
			  ○ All temporary materials were purchased from within Mamelodi.
			  ○ Permanent materials were purchased mostly from outside Mamelodi.
			  ○ Costs of temporary structures are approximately R3 000.
			  ○ Costs of permanent structures range from R2000 to R100 000.
			  ○ Sources of funding include mostly, savings. One household had acquired a loan.
			  ○ Owners seem to dominate the actual construction with the employ of a few private contractors. The association of private contractors with the construction of permanent structures is not evident here. Private contractors and owners build both permanent structures as well as shacks.
			  ○ The time lapse between additions seems to range between a few months to a year.
				• All initial structures were toilets. Two were placed at the back of the erf and one in front.
				• Eight additions have been constructed in total.
				• Three additions were shacks, three were completed houses, one was an incomplete house and one was a garage.
				• Household A constructed two additions, household B constructed three additions and household C, three.
				• Where information (however, minuscule) was available, the following was noted:
				  ○ Material suppliers were sought in Mamelodi and outside Mamelodi.
				  ○ Temporary materials were purchased within Mamelodi and permanent materials, outside Mamelodi.
				  ○ Costs of permanent structures range from R17 000 to R20 000 (no costs of temporary structures were provided).
				  ○ Savings is used mostly. Two loans had been acquired as well for certain extensions.
				  ○ Owners had used their own building skills in the construction of shacks.
				  ○ Private contractors had been employed to construct the permanent structures (houses).
				  ○ The time lapse between additions appears to be between one to five years.

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	TYPOLOGY 1	TYPOLOGY 2	TYPOLOGY 3	TYPOLOGY 4
3. HOW HAS THE UNIT CHANGED OVER TIME	**NUMBER OF EXTENSIONS AND THE TREND IN USE OF MATERIALS** • An average of two extensions was made. • All shacks were constructed from temporary materials and formal structures from permanent materials. **SIZE** • Average erf size: 180m² • Average extension size: 14m² • Average area : 34m² • Average coverage: 19% (ranged between 11% and 27%) • Average occupational density: 8m²/person **SHAPE AND CONFIGURATION*** • Shape: majority have a rectangular shape. • Average dimensions: 3.2m x 4.5m **PLACING OF BUILDINGS** • All extensions have been placed at the back end of the erf, next to the wet core. • In two cases 'L' shapes are formed. • Most reason that the units were placed in such a manner in order to keep place for the actual house to be built.	**NUMBER OF EXTENSIONS AND THE TREND IN USE OF MATERIALS** • An average of approximately 3.6 shacks had been constructed. • They range between two and six. • All shacks had been constructed of temporary materials. **SIZE** • Average erf size: 174m² • Average extension size: 14.5m² • Average area: 48m² • Average coverage: 28% (ranging between 24% and 35%) • Average occupational density: 7m²/person **SHAPE AND CONFIGURATION*** • Shape: Majority take a rectangular shape, except one (square). • Average dimensions: 2.6m x 4.75m **PLACING OF BUILDINGS** • All shacks occupy the space at the back of the erven. • Two of them have placed shacks along the left boundary. • All have placed shacks along the right boundary. • Two households have shacks that have been arranged to form 'U' shapes, whilst the other takes an 'L' shape. • Two households reason that space was reserved for the construction of the house. • In household C space was kept for socialising and easy entrance to the spaza shop.	**NUMBER OF EXTENSIONS AND THE TREND IN USE OF MATERIALS** • An average of three additions has been made. • All formal structures were constructed of permanent materials. Temporary materials were used for the construction of the shacks. **SIZE** • Temporary structures total area: 64m² • Temporary structures average area: 21m² • Temporary structures average size: 16m² • Temporary structures average coverage: 12% • Permanent structures total area: 125m² • Permanent structures average area: 42m² • Permanent structures average size: 42m² • Permanent structures average coverage: 23% • Combined average extension size: 27m² • Combined average area : 63m² • Combined average coverage: 35% • Combined average occupational density: 9m²/person **SHAPE AND CONFIGURATION*** • Majority of extensions take on a rectangular shape except for the houses constructed. • The houses take on odd shapes, i.e. one appears trellised and the other 'L' shaped to a certain degree. • Average dimensions of temporary structure are 2.9m x 5.6m and houses are 5m x 8m. **PLACING OF BUILDINGS** • Initial additions were placed at the back of the erven next to or in line with the toilets. • Houses were placed either at the centre of the erven or at the side. The reasons for the placing of the structures differ in each case. Household A kept place for the construction of the house, household B couldn't build over sewer pipes, and household C had no reason.	**NUMBER OF EXTENSIONS AND THE TREND IN USE OF MATERIALS** • Eight additions have been made, with an average of 2.5 extensions. • All shacks were constructed of temporary materials and all houses were constructed of permanent materials. **SIZE** • Temporary structures total area: 21m² • Temporary structures average area: 21m² • Temporary structures average size: 10.5m² • Temporary structures average coverage: 11% • Permanent structures total area: 195m² • Permanent structures average area: 65m² • Permanent structures average size: 49m² • Permanent structures average coverage: 36% • Combined average extension size: 31m² • Combined average area : 72m² • Combined average coverage: 40% • Combined average occupational density: 13m²/person **SHAPE AND CONFIGURATION*** • Shape: more or less rectangular • Average dimensions of temporary structures: 2.4m x4m • Average dimensions of permanent structures: 5m x 9m • Combined average dimensions: 7m x 4m **PLACING OF BUILDINGS** • All temporary extensions began at the back of the erven. • All houses have been placed centrally on the erven. • All households claim that the placing of the houses were ideal (centre of the erven)
4. HOW IS SPACE WITHIN THE HOME BEING USED?	• On average there are two bedrooms per household. • Everyone has a kitchen. • Only the outside toilet is available to all households. • People require the essentials.	• There are 16 bedrooms in total, an average of five bedrooms per household. • There are 13 kitchens, an average of 4 kitchens per household • There is a lounge in only one household • Toilets provided by government are used in each household • One household has a spaza shop • The use of space is dictated by the essential needs of the residents.	• 12 bedrooms in total. • An average of four bedrooms • Four kitchens in total. Each household has one kitchen. • All have a lounge. • Everyone makes use of the government toilet and have an indoor toilet. Six toilets in total. Average of two. • Two bathrooms. • One house was designed by an architect and the other uses space in the way it does because it is sufficient for the use of the family.	• Ten bedrooms in total. • An average of 3 bedrooms. • All households have one kitchen. • Two households have one dining room. • All have a lounge. • Every household makes use of the toilet provided by government. • Each household has at least on indoor toilet. Total of seven toilets. • Each household has at least one bathroom (four bathrooms in total). • The space was used in this way because it was sufficient for the needs of the family members.

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	TYPOLOGY 1	TYPOLOGY 2	TYPOLOGY 3	TYPOLOGY 4
5. HOW IS THE PROPERTY BEING USED?	• All households have gardens. Two have them in front and the other on the side. • Two households have vegetable gardens, both at the back of the erven. • Vehicular parking is facilitated in the front of the erven of two households. • Tents have been erected on two erven as car ports (B and C). Household B also erected another tent attached to the informal structure that adds to the social space. • Household A has a clothesline on the erf.	• Just one household has a garden. • Households A and C have renters on the properties. In both cases, the renters have been placed on the side boundaries of the erven. • Space for vehicular entry and parking is facilitated by household B and C in the centre of the erf. • All households have storage spaces for building materials and have erected clotheslines. • Household C has a tent erected for the relaxation of the customers of the spaza shop.	• All have gardens at the entrances to the erven. • Rental housing occurs in household C. • Household A conducts some commercial activity. • A service is provided from within Household B. • One vegetable garden. • Vehicular parking is accommodated in two households. • Building materials are stored on two erven. • Household A has a clothesline.	• Two households have gardens in front. • Commercial activity takes place in two households. • Cars are accommodated in Household B. • Storage of building materials is possible on two erven. • Clotheslines are also visible on the same two erven (household A and B).
6. PUBLIC/PRIVATE INTERFACE	**RELATION TO THE STREET:** ***Street Boundary Definition*** • An attempt is made by all households to cordon off their properties from the street with the use of fences (transparent), gardens/trees and stones (landscaping). Two households have made more of an effort to define these boundaries (B and C). **PRIVACY:** ***Side and Back Boundaries*** • Transparent fencing has been used in all households. This doesn't enable the creation of privacy. ***Placing of units*** • The units have been arranged in a manner that allows for some level of privacy and safety, except for the first household. • All units have been placed at the back of the erven along the boundaries. • *Household A:* The lack of complexity in the use of space causes a lack of a positive interaction between the street and the erf. Poor fencing and placing of the unit prevents the creation of private space. • *Household B:* A little complexity has played in the favour of this erf. The strategic planting of trees and the placing of the structures has also played a big role in the creation of diverse usage of space. The presence of two street frontages has influenced that placing of the structures. • *Household C:* There is a little complexity inherent on this erf but sufficient to create a little semi-public space. • ***Placing of the front door*** • All households have their doors facing the central space created by the placing of the structures. This is used in most cases as a socialising area. This compensates for the lack of space within the structures for lounges and other socialising spaces.	**RELATION TO THE STREET:** ***Street Boundary Definition*** • In all households, fences were erected but the purpose of these fences differs. The first two households erected fences in order to define some private space and boundaries. The last household wanted interaction with the public in order to attract business. The attempt for privacy is much more evident in the first household where an attempt is made to cut the public off from the erf. **PRIVACY:** ***Side and Back Boundaries*** • All boundaries have been made with the use of wire fencing that is transparent in nature. In some cases walls have been erected to create privacy, which were successful to a degree. • The boundaries (both sides and back) are however enforced by the arrangement of the structures and trees. ***Placing of units*** • The placing of the units has been done in a manner that facilitates the creation of social space as well as reinforcing the definition of the boundaries. • The placing of the structures also facilitates the construction of the future houses by keeping space for the structure. ***Placing of the front door*** • All doors face inward toward the central space created. This facilitates security and a socialising space.	***Street Boundary Definition*** • The use of transparent fencing across all households did not create private space. **PRIVACY:** ***Side and Back Boundaries*** • Side and back boundaries are weak because of their transparent nature. It does not create privacy. • Privacy from the public is created but not from neighbours except for household A. The wall in household A cuts off interaction with one neighbour. ***Placing of units*** • The placing of the units tends to create private space at the back of the erven in all households. • Circumstances made the placing of these structures in household B appear side by side. Some privacy is created between the structures. ***Placing of the front door*** • Doors have been orientated differently. • Household A creates interaction with the street by placing the door in a manner that faces the street. • The other two households attempt to create privacy and security by focussing on a socialising space created by tents.	**RELATION TO THE STREET:** ***Street Boundary Definition*** • There is an indication of different degrees of fencing that has been done. • Household C displays the smallest attempt at fencing off the house. There is no fence. • Household A attempts with transparent fencing. • Household B goes all the way with the brick wall. Privacy and security is achieved. **PRIVACY:** ***Side and Back Boundaries*** • Transparent fencing has been used in two households. This doesn't enable the creation of privacy. • Household B has defined the boundaries with walls. This provides security and privacy. ***Placing of units*** • All permanent units have been placed at the centre of the erven. This allows for the creation of private space at the back of the erven. • In two cases the space behind the house is to small, i.e. a shack has been retained at the back in household A and Household C has very little space on the erf. ***Placing of the front door*** • All doors have been placed in a manner that suggests the need for security and privacy.

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	TYPOLOGY 1	TYPOLOGY 2	TYPOLOGY 3	TYPOLOGY 4
CONCLUSION	***AFFORDABILITY*** • **Family structure:** All families are single and nuclear. • **Family sizes:** range between 4 and 6. • **Sources of income:** All families are supported by one source of income (either part-time employment or full-time), except for household B that has another source of income acquired from the tenant. The ability of these families to save and make additions is therefore limited to a certain degree considering that this one income source has to support the families. • **Expenses:** Although household B receives two incomes, the expenditure made, accounts for less in comparison to the other two families. This would enable this family to either save or spend on building additions. • **Savings:** Households A and C have numerous expenses to account for but household A is the only one that is able to make savings. **Conclusion** In this case, household B appears to be in a better position, in terms of affordability, to be able to make additions due to fewer expenses, more income sources and a family size of 4. Household C would seem to be less able to make additions due to the larger family size and many more expenses coupled with one source of income.	***AFFORDABILITY*** • **Family structure:** All families are single and nuclear except for household C. This family has extended family members as well (single, nuclear + extended). • **Family size:** Family sizes within this typology range between 4 and 7, however two households have tenants which results in the household sizes ranging between 4 and 12. Family sizes appear regular except for the household with 7 family members. This particular household has extended family members, apart from the tenants, that accounts for such a large family size. • **Sources of income:** Household B has only one source, whilst household C has eight sources of income to support its family of seven. Household A is supported with five sources of income. • **Savings:** In terms of saving only household C is able to. • **Expenses:** Every household has numerous expenses but household B seems to have the most amounts of expenses. Combined with the limited income sources, this would reduce the ability of this household to extend. **Conclusion** The affordability levels of households A and C seem to be higher than household B due to the numerous sources of income in relation to household and family sizes. In general though the affordability levels prevalent within this typology is low when considering the large family sizes and numerous expenses.	***AFFORDABILITY*** • **Family structure:** Typology three is characteristic of single families but with variances in each. There is one single nuclear family, one single nuclear family with extended family members and one woman-headed family with extended members. • **Family size:** Family sizes range between 6 and 10. These are quite large families. Due to one child living elsewhere and the existence of tenants, household size ranges from 5 to 10. Household B has the smallest family size and household A the largest. • **Sources of income:** In relation to income sources, families are supported by two to three sources. For such large family and household sizes, these incomes sources could be insufficient to meet the needs of the family and enable the construction of additions. • **Type of employment:** The types of employment tend to be full-time across all households with additional entrepreneurial/informal activity. • **Expenses:** In terms of expenses made, household A has the most expenses. Coupled with such a large family size, this would be an inhibiting factor for consolidation. Household C has more or less the same amount of expenditure and household B has the least expenses. This should put household B in a better position to make additions than the other households, not only because of the minimal expenses but also because of the small family size. • **Savings:** Only two households have managed to save (A and C), despite their numerous expenses. **Conclusion** Household B would appear to be at a greater advantage because of the smaller household size and fewer expenses. Households A and C seem to have similar affordability levels – expenses and family sizes are similar. However, households A and C have the ability to save.	***AFFORDABILITY*** • **Family structure:** The family structure prevalent in this typology is single nuclear families. • **Family size:** Family and household sizes range between four and eight (no tenants). • **Sources of income:** In relation to the sources of income, the largest and smallest household sizes have two sources of income whilst, household B, family of six, has three sources of income. • **Type of employment:** Household A has one full-time and one part-time income source, whilst household C has one full-time and one entrepreneurial income source. These households have at least one full-time income source compared to household B. Household B has income sources from two entrepreneurial/informal activity and one part-time employment source. • **Savings:** All households are able to save, thereby enabling additions to be built. • **Expenses:** Household C has the most expenses, followed by household B and then household A. **Conclusion** There is no distinguishing factor that would imply one household would be more successful than the other in making additions. Each household has one benefical factor and two inhibiting ones in comparison, i.e. where households A and B have large family sizes, household C has a small one. Where households A and C have fewer income sources, household B has one more. Where household B and C have more expenses, household A has the least.

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CONCLUSION	*PRODUCT* • **Number of additions:** In total seven additions had been made. Households B and C had made three and Household A, one. • **Time:** With reference to the affordability of the households, household A should have been able to make more than one extension since this is the only household that has the ability to save but seems to be having difficulties in extending. This can be accounted for by the dates of occupancy of each household. Households B and C arrived in this extension in 1997 and 1998 respectively and household A in 2001. This would have given households B and C the advantage, i.e. these households had more time to consolidate. • **Type of structures:** Household B should also be in a much better position to make more additions, because of the two sources of income and few expenses, but seems to be in line with household C, i.e. three additions each. In this case, although the numbers of extensions are the same, the type of extensions differs. Household B managed to build a permanent structure amongst the other two temporary structures, but household C had built only temporary structures. Household B is therefore still ahead of the other two households in terms of the level/quality of consolidation. • **Level of formalisation:** The affordability levels of the households become quite evident when one looks at the type of additions that have been made apart from the number of additions. Six temporary structures (made of temporary materials) and one formal structure (permanent materials) have been constructed. These households could not afford to build permanent structures. • **Size of additions:** Additions have been progressively made with an average size of 14m² and ranging from 8.5m² to 20m². In most cases such a space would have to be divided into different uses, i.e. kitchen and bedroom. The affordability levels of these households have influenced the small size of the extensions made. Household A has made the largest additions and household B the smallest.	*PRODUCT* • **Number of additions:** A sum total of eleven additions had been made between the three households, which would give an average of 3.6 per household. A comparison between the households reveal how the numbers of extensions are representative of the income levels and family sizes, i.e. as mentioned before, it appeared that household B would not be able to make many additions and has managed two additions. Household A, although supplied by many sources of income, has managed to construct three additions in comparison to household C that constructed six additions. Households A and C have therefore been quite successful in making many additions. This can be accredited to the fact of many sources of income and the need for space in terms of family size – evident in household C. • **Time:** The initial structures on the erven were a toilet, which implies that the households had arrived after the provision of housing had taken place. In this case, the households had settled here a few months after provision in 1997, i.e. all households had arrived in the same year. The time of arrival on the erven is therefore not a factor that has affected the number and type of extensions produced. • **Type of structures:** All extensions were shacks constructed of temporary materials. • **Level of formalisation:** Considering that all structures were made of temporary materials, the level of formalisation is not advanced. None have progressed to building permanent structures. • **Size of additions:** On average extension sizes were 14.5m², ranging from 7m² to 28m². Household A had made the smallest extension and household B the largest. Low affordability levels have characterised the size of additions made. • **Configuration:** Average dimensions of these rectangular shape additions appear to be approximately 2.6m x 4.75m. • **Area of additions:** On average the areas of additions were 48m², ranging between 42m² and 58m². These areas are small in comparison to the number of people that have to live in these structures. • **Occupational density:** Each person living on these erven has approximately 7m² to him/herself).	*PRODUCT* • **Number of additions:** Nine additions have been made across all households. Five were shacks, one a rondavel and three were completed homes. In total six temporary structures and three permanent structures were built. Household A had constructed three additions, household B built two additions and household C managed to construct four additions. • **Time:** Two households had toilets as the initial structure whilst the other had constructed a shack. In this case this does not imply that household B had arrived before the others. Household B had not been provided with a toilet upon arrival. A toilet was connected later on. What had enabled the construction of three additions in household A and two in household B? This can be explained by the time of arrival. Household A had arrived in 1998 and household B in 2000. Household A therefore had more time to save, plan and build. Date of arrival of household C is unknown, but the appearance of the houses seems to be of better quality in household A than the others. The fundamental difference between household A and C is the amount of income sources, i.e. household A has three and household C has two. This could be the factor that has enabled household A to construct such an appealing house. • **Type of structures:** All households have constructed temporary structures initially with completed houses as the final structures. • **Level of formalisation:** Not only are there many extensions but the type of housing includes three formal structures. Despite large families and numerous expenses these families have managed to produce permanent structures. To be more specific, household A constructed three additions of which one was the completed house, household B managed to build two additions (one shack and one completed house), and household C built a house, a rondavel and two shacks. Each household managed to build one completed house at the end after building shacks. 30% of all additions made were permanent structures.	*PRODUCT* • **Number of additions:** In total, eight additions had been built, of which three were shacks, three were completed houses, one was a garage and one an incomplete house. Household A had constructed two additions, and households B and C had constructed three additions. The number of additions produced by each household appears regular, i.e. 2, 3, 3. • **Time:** The initial units constructed were toilets, which were placed at the back of the erf in two cases and one at the front. This would imply that all households had arrived after housing provision had been conducted. Households A and C had arrived in 1997 and household B in 1998. Households A and C would therefore be at an advantage of a year. • **Type of structures:** All households had initially constructed temporary structures, which were quickly followed by permanent structures. The number of permanent structures produced exceeds the number of temporary structures built. • **Level of formalisation:** Each household went through the phase of constructing an initial shack, followed by a permanent structure and in two cases another permanent structure. The transition from temporary structures to permanent was therefore quick. More than sixty percent of additions were permanent. Households are better able to build additions. • **Size of additions:** Average extension sizes appear to be large (31m²). The average size of temporary additions is 10.5m², whilst for permanent structures the average size is 49m² (5m² – 76m²). There is a large difference between the two. Permanent structures tend to dominate in this typology, in numbers and in size. • **Configuration:** The combined configuration of additions is 7m x 4m (temporary structures – 2.4m x 4m and permanent structures – 5m x 9m). • **Area of additions:** The average area covered by all extensions are 72m², which account for 40% of the erven. Almost half of the erven has been occupied. This implies a larger amount of space per person. On average permanent structures occupy 65m² and temporary structures, 21m². The area of permanent structures is three times as much as temporary structures. • **Occupational density:** Each person residing within any one of these additions has at least 13m² to themselves. The additions built promote comfortable spaces to reside in.

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	CONCLUSION	• **Configuration:** The average dimensions of structures prevalent here is 3.2m x 4.5m. • **Area of additions:** On average the amount of space occupied by the dwellers is also small (34m² - average area of all additions combined) ranging from 20m² to 47m² considering the number of people that actually occupy that space. • **Occupational density:** This leaves an average occupational density of 8m² per person within this typology. • **Coverage:** The additions cover an average of 19% of the erven and range from 11% to 27%. It appears that a small amount of the erven is occupied by structures. This leaves a lot of the area around the structures open for activities or for future construction. • **Shape:** Characteristic of additions here is a rectangular shape. • **Arrangement of structures:** However, the arrangement of the additions generally takes on an 'L' shape along the back and side boundaries. It appears to be an indication of the desire to restrict the use of the central area of the erf in expectation of the construction of the house. This space is used as socialising space at present. • **Type of employment:** The type of employment seems to have no affect on the additions made, i.e. even though household B had two sources of income from part-time employment, the level of formalisation is a degree higher than the other two households that had one source of income from a full-time employment source. **Conclusion** *Household B* seems to have been the successful household to build a permanent structure. Factors that have played a role here in comparison to the other households is the low expenditure levels, more income sources, fewer family members, and having more time to consolidate. *Household C* also had more time to consolidate than household A, but was inhibited by more family members, one income source, and many expenses. *Household A* had one addition but was the largest one across all the households. Although household A had the same family size as household B, it was inhibited from consolidating by arriving later than the other two households, one source of income, and numerous expenses.	• **Coverage:** On average the extensions on the erven cover 28% of the erven (erven sizes ranging from 166m² to 179 m²). Coverage sizes range between 24% and 35%. Considering that erven sizes are small, coverage is small. • **Shape:** All additions appear rectangular. • **Arrangement of structures:** All shacks constructed seem to have been placed at the back or side of the erven in formations of 'U' and 'L' shapes. Households A and B explained that this arrangement of the shacks was for the reservation of space for the construction of the future houses. Household C arranged the shacks in this manner in order to create a socialising space for the customers of the spaza shop in one of the structures. • **Type of employment:** The type of employment does not seem to have an effect on the level of formalisation or the number of additions produced. **Conclusion** *Household C* seems to be the most successful in terms of the number of extensions produced. The factors that have facilitated its success are the numerous income sources and the ability to save. Inhibiting factor was the number of family members and numerous expenses. *Household A* is also quite successful considering the number of additions produced in comparison to household B. The beneficial factor here is also the number of income sources available. The factors that inhibited growth were the number of family members and the expenses. Household B had numerous expenses to contend with as well as just one source of income. However, this household managed to produce the largest structure of the three households.	• **Size of additions:** Average addition size is 27m², ranging from 12m² to 52m². On average temporary structures were 16m² (ranging between 12m² and 18m²). Sizes of permanent structures ranged between 29m² and 52m² with an average of 42m². Permanent structures appeared to be two and a half times larger in size than temporary structures. • **Configuration:** Temporary structures generally had dimensions of 2.9m x 5.6m whilst permanent structures appeared larger (5m x 8m). Dimensions of permanent structures are larger than those of temporary structures. • **Area of additions:** The average area of all additions combined is 63m². Permanent structures on their own have an average area of 42m² (range 29 – 52); whist temporary structures have an average area of 21m² (range 12 – 34). Temporary structures are half the size of permanent ones. • **Occupational density:** Each person on the erven has at least 9m² to themselves. • **Coverage:** In terms of coverage of the erven, the average coverage is 35%. This leaves more than half of the property open for development or activities. Temporary structures have coverage of 12% and permanent structures, 23%. Temporary structures occupy less space. • **Shape:** The houses built take irregular shapes but all shacks were rectangular. **Arrangement of structures:** The shacks were all placed at the back of the erven and houses either in front or in the centre. The reason for each household is different for the structures being placed in such a manner but eventually the centre of the erven was the area of selection. • **Type of employment:** In this case the type of employment could attribute to the level of formalisation, i.e. although household C has a full-time employment source plus rental money, households A and B have **two full-time** employment sources coupled with entrepreneurial/informal activity, where the latter two households have managed to produce permanent structures of better quality than household C. **Conclusion** *Household A* has managed three additions with a high quality permanent structure. Although the family size was large and expenses were large, the presence of three sources of income (two of which were full-time employment sources) and arriving on the erven earlier and having savings has enabled this household to construct a formal structure of good quality.	• **Coverage:** Permanent structures have 36% coverage whilst temporary structures have coverage of 11%. Permanent structures occupy three times as much space as temporary structures. • **Shape:** The dominant shape is rectangular. • **Arrangement of structures:** The placing of the shacks at the back and the houses in the centre of the erven imply that the households had planned to build their houses in the centre. They were keeping space for the houses by building the shacks at the back. All households had admitted that this was the ideal place for their houses. • **Type of employment:** There is no clear relation between the type of employment and the level of formalisation. It does not seem to have affected any households' ability to consolidate. **Conclusion** *Household A* managed to build a good quality house despite the large family size and two sources of income. This household had fewer expenses and an advantage of a year compared to household B. *Household B* had an advantage of three income sources and a small family size. This household managed to build the best quality house inclusive of the boundary walls despite arriving a year later than the other households. *Household C* had the most expenses, the smallest family size and the same number of income sources as household A. Even after being on the erven for a year before household B had arrived, this household has produced permanent structures but not to the same standard and quality as household B. Household B and C produced the same number of additions. All households had the advantage of having the ability to save.

COMPARATIVE ANALYSIS OF TYPOLOGIES WITHIN EXTENSION SIX

	TYPOLOGY 1	TYPOLOGY 2	TYPOLOGY 3	TYPOLOGY 4
CONCLUSION			*Household B* has also managed to produce a good solid permanent structure after the construction of one temporary structure. The factors that have enabled the transition from temporary to permanent structure seem to be the number and type of sources of income accompanied by limited expenses. Family size could have limited the level of formalisation to standards produced by household A. *Household C* also has a large household size with many expenses, savings and two sources of income. Although this household has managed to construct many temporary structures, the permanent structure produced is of less quality than the other two households' houses. The type and number of employment sources become relevant here, where this household has only one full-time employment source that is supplemented by rental income.	
	PROCESS • **Sourcing of materials:** Quite interestingly to note is the sourcing of materials. In relation to temporary materials, these were sourced within Mamelodi and permanent materials were sourced outside. The poor financial state also lead to one household making their own bricks. • **Cost:** Costs of these additions are low. Each addition cost between R450 to R1300 averaging R875. Not much more could be afforded. • **Funding:** Access to credit was not an option in these households since all had used savings. • **Builders:** There was an equal usage of private contractors and owners skills in the construction of additions. In light of the affordability levels being affected by so many inhibiting factors, private contractors are still made use of in addition to the building skills within this typology. • **Time:** The time between each addition is quite small, indicating that people save up a little over a small time period and then build small additions.	***PROCESS*** • **Sourcing of materials:** All materials were sourced within Mamelodi (all structures produced were temporary). • **Cost:** Costs range between R870 to R3300 with an average of R2 085. • **Funding:** In most cases credit was the main source of funding, which re-emphasises the low affordability levels and poor savings abilities inherent in this typology. • **Builders:** The use of private contractors also became quite apparent. Only in two additions did the owners use their own building skills. Although affordability was an issue, private contractors were used in abundance compared to using their own skills. • **Time:** The time period between extensions seem quite small (between a few months to three years). Household B took three years between extensions, which seems to be related to the limited income sources. Although lots of time was taken, household B was able to build the largest addition. The other two households managed to build up quite quickly and smaller additions were made.	***PROCESS*** • **Sourcing of materials:** Materials for building had been acquired from numerous sources but the interesting observation to note is the acquisition of temporary and permanent materials from almost distinctly different sources, i.e. the trend visible here is of temporary materials being purchased from within Mamelodi and permanent materials mostly being purchased from outside Mamelodi. • **Cost:** The costs generally ranged from R2000 to R100 000 for permanent structures and R3 000 for temporary structures. • **Funding:** The costs of these additions were expensive in the case of these families that had used their savings in most cases. A loan had been acquired for the construction of one addition. • **Builders:** Owners had used their own skills in the construction of their additions. Private contractors had been employed in one or two cases. The level of skills usage within this typology is therefore quite high. The use of private contractors and owners had been used for the construction of both shacks and formal additions. • **Time:** The time lapse between additions range from a few months to a year. The speed of delivery is fast. This implies that the families are able to mobilise money fast enough to enable the construction of additions. Having construction skills also benefit the time within which additions were completed.	***PROCESS*** • **Sourcing of materials:** The purchasing of temporary materials was done within Mamelodi and for permanent structures, outside Mamelodi. • **Cost:** The costs of extensions within this typology ranged from R17 000 to R20 000 for permanent structures. A lot of money was invested. • **Funding:** For certain extensions loans were acquired, but in most cases savings was used. • **Builders:** In relation to the type of additions made, i.e. temporary or permanent, the type of labour employed correlates. Owners had used their own skills to build their shacks but employed private contractors to build their homes. • **Time:** The time lapse between additions appears to be between one and five years.

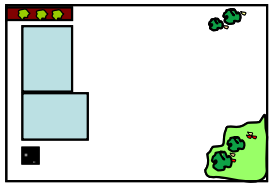
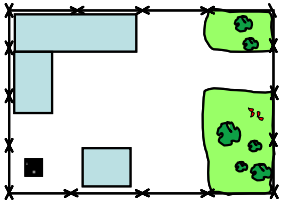
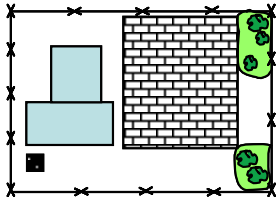
COMPARATIVE ANALYSIS OF TYPOLOGIES WITHIN EXTENSION SIX

	TYPOLOGY 1	TYPOLOGY 2	TYPOLOGY 3	TYPOLOGY 4
CONCLUSION	***USE OF SPACE*** ***Within structures*** • The uses within the additions are the essentials, i.e. kitchens and bedrooms. On average each household has two bedrooms, one kitchen and also makes use of the toilet provided by government. It appears that these households are surviving on the essentials based on their poor financial situation and the family members to support. ***Within erven*** • **Gardens:** The uses on the erven itself indicate some level of diversity. In general the flower gardens are placed at the front and vegetable gardens at the back of the erven. It seems that flower gardens are decorative and are placed at the front for passers by to admire. Vegetable gardens can also be admired, but its purpose differs slightly. Not only is it decorative but it also provides the owners with food. The placing of such gardens at the back is for the protection of this investment and potential guarantee of food, if taken care off. The presence of vegetable gardens can be seen as a survival strategy. It provides a saving of money. • **Parking:** Parking for vehicles is accommodated at the front of the erven. This use was probably not planned for initially and hence takes such a position. Both households have fenced off their homes that helps protect their cars. The cars parked in these properties belong to friends and are not luxuries of these households. • **Tenants:** Household B has a renter in the structure placed against the boundary along the street. • **Other:** Tents have also been erected here to serve as the car ports and a social space. A clothesline appears in household A.	***USE OF SPACE*** ***Within structures*** • In terms of the use of space within the additions, they appear to be the basic needs, i.e. bedrooms and kitchens. One household (B) does however have the *luxury* of a lounge. All households make use of the toilet provided by government. • In total there are 15 bedrooms which average out to five bedrooms per household. The number of bedrooms is related to the number of people residing between these three households. • The number of kitchens can be explained in much the same manner, i.e. there are 13 kitchens in total with 4 per household as the average. The number of people occupying the households explains the large number of kitchens and bedrooms. ***Within erven*** • **Gardens:** Within the erven, the uses extend from gardens to the use of tents. Only one household has a garden in front of the house. • **Parking:** Space for the parking of vehicles is made in the centre of the erf. Household B and C do possess cars *(luxury)* of which one is in working condition (household C). • **Tenants:** Renters exist in the other two households (A and C) along the side boundaries. • **Commercial:** In household C the *survival strategy* employed is that of a spaza shop that occupies one temporary structure at the back of the erf. • **Other:** Other uses include storage spaces for building materials which is generally kept at the back of the erven. All households have storage facilities or spaces. Clotheslines are also erected between extensions or on the side of the erven. In household C a tent is erected for the relaxation of its customers.	***USE OF SPACE*** ***Within structure*** • The spaces within the structures are used as follows: bedrooms, kitchens, lounges, toilets, and bathrooms. • **Bedrooms:** In total there are 12 bedrooms with an average of four per household. This is a large number of bedrooms that attempt to accommodate the large household structures. • **Kitchens:** Each household has at least one kitchen – four kitchens in total. • **Lounge:** All households also have a lounge. These households are able to make space for socialising within the structures as well, which is seen as a luxury. • **Toilets:** The toilets provided by government are use as well as indoor toilets (luxury). • **Bathrooms:** Two households have the luxury of bathrooms. • Households have divided spaces into uses that suit the needs of their families and what they can afford to build. They exceed the basic needs (kitchens and bathrooms) by building indoor toilets and bathrooms, lounges and many bedrooms. Comfort needs of the households are also catered for and many luxuries have been attained. ***Within erven*** • **Garden:** In terms of use of space on the erven, each household has a garden at the entrance to the erven. One household (C) has a vegetable garden in front of the erven. • **Survival strategy:** Each household generates other income either via providing a service (repairs of refrigerators, etc), selling goods or renting out a structure. Each of these activities is specific to each household. • **Parking:** In two households the centre of the erven are used to accommodate vehicles. • **Storage:** Storage of building materials tend to happen on two erven, one at the front and one at the back. Storage of materials therefore happens where space is available, whether in front or at the back. • **Other:** Just one household has a clothesline erected at the side of the erf. • The use of space on the erven is very diverse. The only commonality between all three households is the presence of gardens at the front of the erven.	***USE OF SPACE*** ***Within structure*** • The use of space within the houses displays diversity and the ability of these households to afford to build such homes to accommodate such uses. The uses go beyond the basic needs of a kitchen and bedroom. Each household has an average of three bedrooms, one kitchen, a lounge, an indoor toilet and a bathroom, the latter three uses being luxuries. • In total there are ten bedrooms across the three households. Two households have a dining room (luxury) and every household makes use of the toilet provided by government apart from their indoor ones. ***Within erven*** • **Gardens:** Two households have flower gardens in front of their homes (decorative). • **Parking:** One household is able to accommodate a vehicle. Household B has the luxury of owning a car. • **Survival strategy:** Commercial activity is conducted from within households A and B. • **Other:** Storage of building materials occurs on two erven (household A and B) and clotheslines are erected at the back and on the side. • Uses of the erven are not very simple.

COMPARATIVE ANALYSIS OF TYPOLOGIES WITHIN EXTENSION SIX

	TYPOLOGY 1	TYPOLOGY 2	TYPOLOGY 3	TYPOLOGY 4
CONCLUSION	*PUBLIC/PRIVATE INTERFACE* • **Street boundary:** All households have made attempts to cordon off their properties either with fencing or the use of stones. Two households are much more defined in their attempts than household A. The use of stones in household A creates a decoration but does not succeed in preventing people from invading their space, i.e. public space from the street invades the erven thereby creating interaction, increasing security risks and preventing the creation of privacy. Besides the use of fencing in the other two households, trees and plants are used to create a secure environment within the erven. • **Space between the street and the structure:** The space between the street and the additions appear to range from simple to a bit complex. Apart from the use of trees and fences there are paved areas for parking, gardens and stoeps. An attempt is therefore made to create a more complex environment before one enters the additions thereby making the experience of the transition from public space to private space more clearly defined and functional where interaction with the public is not cut off and where the public space does not invade the space within the erven. • **Side and back boundaries:** Although the fencing is continuous throughout all boundaries on all erven, this fencing does not serve the purpose of creating privacy because of its transparent nature. Rather, the placing of the additions in the 'L'shape along the boundaries and the placing of the gardens facilitate the desire for privacy and satisfy that need to a certain degree. Private space is therefore created in household B. • **Placing of units:** All structures have been placed along the side and back boundaries, leaving a large central space open in front of the structures. It has been used mainly for socialising. • **Placing of doors:** All doors in all households face this central socialising space created.	*PUBLIC/PRIVATE INTERFACE* • **Street boundary:** The attempt at definition of private space within households A and B are quite evident with the use of fencing in the front and the planting of trees and creepers. However household C attempted to create interaction with the street in order to attract people to the spaza shop. The street definition of each household is therefore different for the different intentions pursued. • **Space between the street and the structure:** The level of complexity within the erven of household B differs to that of the other two households. Household B is much more complex, i.e. upon entrance to the erf through the gate; there is a garden and a concrete area that could function as a verandha or stoep. The progression from public to private space is gradual allowing interaction with the public space until a certain point. The other households have almost direct interaction with the street if it were not for the gates in front of the erven, the rest area in household C, and the trees and clotheslines in household A. Household C therefore invites public space in while household A attempts to cut of the interaction with the placing of the clothesline. • **Side and back boundaries:** All side and back boundaries appear to be made of transparent wire fencing. Some side boundaries are re-enforced with walls and trees. This helps to facilitate the definition of semi-private space, which seems to be successful in household A. • **Placing of units:** The placing of the units on all erven is done in such a manner that a central socialising area is created. The units also re-enforce the boundaries that were attempted to be defined by the fencing. The placing of the units therefore plays two roles, i.e. creation of socialising space and boundary definition. • **Placing of doors:** All doors face the central space created (socialising space).	*PUBLIC/PRIVATE SPACE* • **Street boundary:** Fencing at the front of the erven doesn't assist in creating privacy since the fencing used is transparent. • **Space between the street and the structure**: Movement toward the structures on each erven is first encountered by a flower garden. One household has a vegetable garden at the entrance as well which makes the use of space more complex, thereby facilitating a gradual transition from public to private space. Further inward, before entering any structure within household C there is a tented area with a concreted area below. This creates a 'veranda' that adds to the gradual transition. Households A and B also have a diverse use of space that assists in creating the gradual transition from public space to private space. Household B had erected a tent between the entrances of the shack and the house to create some privacy. The presence of the tent allows for interaction and privacy when desired by the residents simply by raising the tent of lowering it over the area. The entrance to the house is also facilitated by stairs. The use of space is not as diverse but achieves the objective of privacy. Household A has the least amount of space that is used in a diverse manner, but attempts it by creating a veranda at the front of the house accompanied by a small garden on the side. • **Side and back boundaries:** Side boundaries tend to be weak where privacy is not accomplished. Privacy from the public is created but neighbours can intrude. Household A on the other hand had built a wall along one boundary that creates some privacy from the adjoining neighbour. • **Placing of units:** The placing of the structures has facilitated private space at the back of the erven generally. The houses have been placed either in the centre of the erven or at the side. • **Placing of doors:** The orientation of doors in each erven differs. Whilst household A offers itself for interaction with the street by placing the front door facing the street, the other two households prefer to create some privacy. Households B and C have placed their doors on the sides and have attempted to re-inforce this by placing tents in appropriate positions. The use of tents in each case has been used above entrances to structures and attempts to break down the use of space to become more private.	*PUBLIC/PRIVATE SPACE* • **Street Boundary:** Some cases reflect a desire for privacy with the construction of a brick wall whilst in the other cases transparent fencing is used or not at all. There are varying degrees in the type of fencing built. Household B allows for some interaction at the front of the property with the use of spikes in combination with the wall. • **Space between the street and the structure:** The lack of diverse use of space within the erven reflects a bad attempt at the gradual progression from public to private space. The result is that in one case the public space is cut off to a certain degree (household A) and in another case the public space intrudes to a great degree on the erven (household C). Household B encourages interaction with the public because of the spaza shop. • **Side and back boundaries:** The definition of boundaries is quite apparent in all households. However, the use of materials used differs: household A and C have used transparent fencing, which defines boundaries but creates no privacy. Household B constructed a wall, which allows for a great degree of privacy. • **Placing of units:** All structures have been placed at the centre of the erven which allows for the creation of private space at the back of the erven. It is successful in the case of household B but not to such a degree in the other households because of the type of fencing used. • **Placing of doors:** Although household B encourages interaction with the street, this is via the garage (location of the spaza shop). The door of the house is placed in a way that suggests the need for privacy. Households A and C have placed the doors on the side of the houses, which also suggests the need for privacy.

COMPARATIVE ANALYSIS OF TYPOLOGIES WITHIN EXTENSION SIX

	TYPOLOGY 1	TYPOLOGY 2	TYPOLOGY 3	TYPOLOGY 4
CONCLUSION	***Pattern:*** *All structures have been placed at the back of the erven leaving maximum space open in front. Gardens and trees exist at the entrance with vegetable gardens at the back.* 	***Pattern:*** *All structures have been placed along the side and back boundaries either in 'L' or 'U' shapes creating a central space for socialising. The entire erf is fenced with a garden or trees planted at the entrance. All structures focus on the central area.* 	***Pattern:*** *All temporary structures were initially placed at the back with the permanent structures in front leaving space at the back which is private from the public but not from the neighbours. All erven are fenced with gardens at the entrances. Tents are used at entrances to structures to create a break from public to private space and to create some socialising space.* 	***Pattern:*** *Initially temporary structures were placed at the back of the erven with permanent structures placed in front of them. Some temporary structures were removed in order to construct the house. Differing levels of boundary definition with little diversity in the use of space.*