UMHLANGA RIDGE

NEW TOWN CENTRE

Development Manual

Gapp Architects and Urban Designers

Volume 2

Guidelines and Requirements for the Development of Mixed – Use Sites

Version 1.8
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1. INTRODUCTION

The Development manual is laid out in three volumes.

Volume 1 lays out the relationship that the Umhlanga Ridge has to the region, the design philosophies on which it is based, the town planning context, and various processes put in place to manage both the development and ongoing operation of the New Town Centre.

This Volume, **Volume 2** describes the specific architectural guidelines applicable to the mixed-use sites, which comprise the true urban core of the New Town Centre.

Volume 3 describes the specific architectural guidelines applicable to the business park sites which frame the New Town Centre along its frontage with the surrounding major arterial roads, the N2 and M41.

The residential precinct lying between the New Town Centre and Prestondale is the subject of a further Development Manual and is not the subject of the above 3 volumes.

2. DEFINITIONS

In this document, the following terminology is used:

- "**Umhlanga Ridge**" refers to the Umhlanga Ridge New Town Centre
- "**The Association**" refers to the Umhlanga Ridge Town Centre Management Association
- "**The Committee**" refers to the Design Review Committee of the Umhlanga Ridge Town Centre Management Association
- "**DMA**" means the Durban Metropolitan Area

3. FUNDAMENTAL PRINCIPLES

In essence the design ethic is to use buildings to define space rather than for buildings to appear simply as objects in space having little or no relationship to one another. It is therefore important for the built fabric of the town centre to have a critical mass defined by:

- Relatively high floor area ratios
- Minimum heights that, at different points within the town centre, achieve an acceptable degree of enclosure of the public environment
- The definition of build-to lines that ensure that buildings conform to create strong street edges rather than recede from the public environment
- Minimum design criteria that accentuate the building's relationship to the public environment, its point of entry, parking, vehicular circulation, the security

treatment of site boundaries, massing of built form, elevation and roof treatment, façade modulation, vertical composition and relationship to adjacent developments.

4. THE ARCHITECTURAL ETHIC

4.1. The architectural ethic sought is that of an urban character displaying *"good public manners"* meaning that, as important as the building may be in its own right, it recognises its context, is respectful of its neighbours, responds to and enriches the public, semi-public and private environments it defines, and contributes to an overall group form distinguished by its urbaneness.

4.2. While welcoming an eclectic range of architectural styles, "theme" architecture is discouraged. Where historicist reference is to be made in the design of what are, after all, contemporary buildings, it is important to note that slavishly copying of some historical style (that is, creating a *pastiche*) is strongly discouraged. Any reference to an historical style is to clearly display an analysis of that style, the principles on which it was based and to demonstrate how these are re-interpreted into a contemporary idiom.

4.3. The thrust of the architectural ethic encouraged is that of an enduring, timeless quality. The approach adopted should not be slavish either in terms of fashion nor style, to the extent that even an extremely contemporary piece of work should date and mature in an unselfconscious way and be understood to be a good example of its time.

5. MATERIALS AND QUALITY OF WORK

5.1. The use of high quality materials and their application being of the highest standards is strongly encouraged. Durability and easy, cost-effective maintenance is also to be encouraged.

5.2. While as wide a range of materials as possible is envisaged, the extent to which materials accentuate and enhance the elegant, dignified quality of architecture being sought should influence the choice.

5.3. All materials used and their application are to be to the satisfaction of the Committee whose judgement will be directed, amongst other things, by the extent to which the materials chosen are integral to the achievement of a high quality of architecture.

5.4. All materials to be used should have an adequate record of application in the climatic conditions prevailing in Umhlanga. High quality materials such as sandstone, granite, marble, slate, ceramic, clay products, plaster and paint, epoxy coatings, suitably treated wood, anodised or coated aluminium, stainless steel and suitably treated glass are encouraged. Other high quality materials, both in performance and aesthetic terms, will be considered although the Committee's decision in this regard will be final.

5.5. All surface coatings are to be long lasting, enduring in quality and appearance and requiring only low to moderate maintenance. Thus, if a coating is to be applied to a

brick and plaster façade, the coating should be of an epoxy-based permanent variety or similar approved.

5.6. Wall materials may vary from load-bearing brick, high quality masonry block, suitable stone, clay, ceramic, granite, slate or marble, to lightweight framed and panelled systems or glazed curtain walling. The heavier-weight wall applications should relate to their ground-level support and not appear to be supported in a lightweight frame.

5.7. Although reflective glazing of varying degrees may be used, its extensive use is discouraged and it should be used to achieve specific architectural intentions. Where reflective materials are to be used, the onus rests with the developer to show that such reflective material will not lead to an inconvenience or injurious condition within the environs of the development.

5.8. Materials and elevations should reflect a consciousness in respect of energy and water conservation and all materials used in screening, filtering of sun or heat, and sun control blinds should comply with high-quality, well-tested specifications.

5.9. All roofs, whether pitched or flat, are to be dealt with as conscious elements of façade treatment. Even flat roofs, whether behind a parapet or not, are to be suitably treated with a high quality coating, aggregate, pebble, tile or planting.

5.10. All shade structures, whether on a building's façade, its roof or on the surface are to be of a substantial nature and designed in keeping with the building's' architectural ethic. Shade cloth is discouraged and may be permitted by the Committee only in special instances and then only in applications subservient to the structure itself and only in very restrained ways.

5.11. Annexure A to this volume of the Development Manual sets out a recommended palette of materials and their applications. The intention to be as inclusionary and open-ended in respect of choice of materials and applications but to encourage a subtle integrity within the group form created by a wide range of otherwise disparate developments. Architects are therefore encouraged to refer to existing adjacent and surrounding developments and explore ways in which this integrity might be promoted without compromising the individual qualities of their specific buildings.

6. COLOURS AND TEXTURES

6.1. The principal colouring envisaged for the town centre is in the range of cool to warm earthy colours on one hand and light, high-tech colouring on the other. Light grey, red clay, rich reddish/orangey/yellowish and blue iron-spot hues, terracotta, tan, beige, biscuit, silver and clear glass are all included in this principal range. The principal colours should form between 60% and 70% of any one façade of a building, including the roof as an integral part of the relevant elevation.

6.2. Whites, blacks, charcoals, deep greys, browns, greens and blues are to be regarded as secondary colours and should not exceed 20% to 30% of any one façade of a building, including the roof as an integral part of the relevant elevation.

6.3. Primary and saturated colours are to be regarded as accent colours and should be confined to no more than 5% of any one façade of a building, including the roof as an integral part of the relevant elevation.

6.4. All materials noted above and within the above colour range are encouraged and a wide variety of subtle textures is welcomed. Heavily textured materials that tend to trap dirt and dust are discouraged. In areas of a building where graffiti and vandalism may result, the choice of smooth, easily cleaned or re-coatable materials is encouraged. In areas where people come into contact with the exterior surface of a building, materials that take this comfort into account are encouraged.

6.5. As with the choice and application of materials, a palette of recommended colours and their applications is included as Annexure A to this volume of the Development Manual. As with the choice of materials, architects are encouraged to refer to existing adjacent and surrounding developments and explore ways in which a subtle integrity of group form might be achieved without compromising the individual qualities of their specific buildings.

7. ADDRESSING THE STREET, THE INNER CORE OF THE BLOCK AND THE RELATIONSHIP TO SURROUNDING DEVELOPMENTS

7.1. The group form achieved collectively by buildings in the town centre is important and the overriding group form sought is that of a *street-related wall architecture*. That is, as a general principle, each street or urban space is to be lined by a continuous façade of buildings, each building bearing a strong relationship to its neighbours and, hence, to the collective streetscape. While heights and the extent to which each building conforms to a common build-to line may vary marginally, and while a variety of architectural styles may express the individual identities of each building, the net result is to be a coherent formation of a complex, though integrated façade fronting onto the public environment.

7.2. In order to achieve this, it is essential that gaps between buildings be as limited as possible and buildings are encouraged to butt up against one another at least in respect of their street edges. Where driveways or pedestrian lanes are to penetrate from the street through to the rear of a lot, it is encouraged that such discontinuity in the building's street façade be limited to its ground floor only.

7.3. It is also to be encouraged that common elements occurring as part of each building's proportioning and modulation system be brought into relationship with one another. Tide lines, cornice lines, or other devices of horizontal modulation, for example, should be related from building either by common weight of expression (be this implied or literal), being lined up with one another or by a regularity in the relative off-set of one to another. Similarly, the vertical modulation of buildings should have the combined effect of establishing a rhythm of frontage as viewed as a combined street façade, be this in perspective or pure elevation. Thus the repetition of elements such as a structural module, fenestration, embayments or entrances should combine to create a rhythm of progression along the street façade.

7.4. It is essential, in the event of one building preceding either of its neighbours, that all blank facades built onto common boundary lines in anticipation of an adjacent

building butting up against such façade, be treated as properly finished elevations in keeping with the building's architectural style.

7.5. As important as the relationship is between a building, its neighbours and its frontage onto the public environment, it is equally important that the interior condition of each block be considered with similar importance. An essential design principle of the town centre is that the interior of each block should be recognised as a place in its own right. Apart from being subject to a servitude held over private property, it too should form an important ingredient of the semi-private domain of the town centre.

7.6. In each instance the core of the block is intended to become a semi-private court, whether used collectively by lot owners in that block as an underground parking garage with gardens above it, various configurations of well-landscaped surface parking courts, or as an above-ground parking structure commensurate with the mass and form of the architecture surrounding it. Whatever the exact nature of the use of this court, it is essential that the development of each lot recognises it as an equally important frontage and responds to it accordingly.

8. BUILDING RESTRICTION AREAS, BUILD-TO LINES AND BUILD-WITHIN ZONES

8.1 Building restriction areas

8.1.1 Where a site is subject to a non-user servitude, the bulk and coverage calculations are to be based on the gross site area although the development itself is to be confined to the net area of the site alone. The area designated as non-user servitude is to be used for paving, planting and parking purposes only and kept free of structures other than basements which, subject to written approval by the Design Review Committee in cases of individual merit, may encroach partially or wholly into the non-user servitude area.

8.1.2 In the case of corner sites (unless otherwise indicated on a precinct plan or at the discretion of the Committee), a splayed building restriction area measuring 3m by 3m applies in respect of ground floor level only, leaving clear headroom of a minimum of 3.5m. On all other sites (unless otherwise indicated or at the discretion of the Committee), any designated building restriction area or non-user servitude restriction applies to all levels of the building other than basement level.

8.1.3 A lot owner may be released from the requirements of a non-user servitude or building restriction area at the discretion of the Primary Developer after reference to the Committee.

8.1.4 No side space nor rear space restrictions apply to sites within the town centre other than where specified otherwise, or in the case of a non-user servitude or subject to the provisions of the NBR.

8.1.5 Additional building restriction areas may be designated, or designated building restriction areas removed, as may be indicated on a detailed precinct plan from time to time.

8.2 Build-to lines

8.2.1 The boundary of a lot abutting a street or streets is, unless otherwise indicated, regarded as a build-to line on which a minimum of 90% of a building's street-facing façade must be built.

8.2.2 The build-to line is to apply to all levels within a building's façade provided that, beyond a height of 2 storeys, the façade of the building may be developed on a line no further than 1m from the street boundary and provided further that, beyond a height of 3 storeys, the façade of the building may be developed on a line no further from the boundary than 2.5m.

8.2.3 Overhanging elements of a building's street-facing façade, such as balconies, sun screening devices and eaves, are not regarded as defining the building's street-facing façade and may extend beyond the build-to line.

8.3 Build-within zones

8.3.1 Where a lot is not specifically designated as being subject to a building restriction area or build-to line, such lot is deemed to be subject to a build-to zone extending along the full street boundary or boundaries to a depth of 2m (unless otherwise specified) measured from such boundary.

8.3.2 Where a site is subject to a build-to zone, 90% of any relevant street-facing façade of a building shall be developed to, over or within such zone.

8.3.3 The build-within zone is to apply to all levels within a building's façade provided that, beyond a height of 3 storeys, the façade of the building may be developed on a line no further from the boundary than 4.5m.

8.3.4 Overhanging elements of a building's street-facing façade, such as balconies, sun screening devices and eaves, are not regarded as defining the building's street-facing façade and may extend beyond the build-within zone.

9. HEIGHT OF BUILDINGS

9.1 It is an express intention to achieve as much of an urbane quality as possible and to this end developers are encouraged to achieve maximum allowable bulk and height. Whereas developers may not wish to utilise their full height allowances, it is nevertheless essential that the following applies:

- No single storey buildings may be developed unless such building is a double volume (with or without a mezzanine level or levels) and attains a minimum façade height of 8m provided that the Committee may, in cases of individual merit, permit a lower façade provided that the roof element of the building is designed to achieve a ridge-line of 8m height at a distance back from the main street-related façade plane of the building of not more than 1.5m and provided further that such roof element does not exceed a vertical height of 2m measured from the wall-plate level of the building's dominant façade.

- Any two or three storey building is to attain a minimum façade height of 8m provided that the Committee may, in cases of individual merit, permit a lower façade provided that the roof element of the building is designed to achieve a ridge-line of 8m height at a distance back from the main street-related façade plane of the building of not more than 1.5m and provided further that such roof element does not exceed a vertical height of 2m measured from the wall-plate level of the building's dominant façade.

9.2 Exceeding the permitted maximum height for a building in respect of creating a landmark or an accentuated architectural feature can, in cases of individual design merit, be permitted by the Committee and is, in fact, actively encouraged in helping to create a townscape of unique and complex qualities.

10. MIXED USE DEVELOPMENT, STREET RELATED USES AND ENCOURAGEMENT OF RESIDENTIAL DEVELOPMENT

10.1 Much of the quality and life sought for the town centre is dependent on the extent to which mixed use developments are achieved and there is, accordingly, a high priority on encouraging developers to respond in this regard.

10.2 Retail, restaurant and entertainment activities at ground level where permitted in terms of the use zone and where not considered to constitute an undesirable intrusion into a precinct are welcomed. As far as possible, therefore, the continuity of vibrant ground floor activity is encouraged together with the continuity of the building fabric.

10.3 This, together with the use of sidewalk space, becomes an important element in the architecture of a building and the use of colonnaded, canopied or similarly shaded and rain-protected sidewalk space becomes an important determinant of the architectural approach adopted.

10.4 Where the ground floor of a building is not to be used for active uses such as retailing, it is nevertheless important that the office or residential uses at ground level are designed so as to have an active interface with the street, be this in the way windows, entrances or common areas face out onto the street and promote the surveillance of the street space. Blank, or largely blanked off ground level facades are expressly discouraged. Where basement parking structure projects above ground level at any point facing onto a street or urban space, this projection is to be limited to no more than 1.2m. Similarly, where the ground level of a building is to be disengaged from the adjacent sidewalk level at any point, the vertical extent of this disengagement is not to be more than 1.2m.

10.5 The ideal configuration of a mixed-use building comprises an active ground floor of retail related uses, two or three levels of offices above this and a further one or two levels of residential apartments and penthouses. Every encouragement to achieve this mix is supported.

11. CLARITY OF PEDESTRIAN ENTRY AND RATIONALISATION OF VEHICULAR ACCESS AND PARKING

11.1 With the emphasis on street related architecture goes the requirement to accentuate and detail pedestrian entry to the building both off the street and from a potential parking court at the core of the block. In effect the building becomes a double frontage development with pedestrian circulation and clarity of access being important from either side.

11.2 Given the close juxtaposition of the main entry into a building with the sidewalk, care must be taken to deal with the transition from public sidewalk to the semi-private and private interior of the building's lobby.

11.3 It is an express intention of the design of the town centre that it be as user-friendly and as accessible as possible to all people regardless of disabilities. Thus ramped access to buildings should not only comply with regulations in this regard but should, as far as possible, be designed as an integral part of the building's sense of arrival. Lifts in all buildings over one storey high are also encouraged in order to make all levels of buildings accessible. To whatever extent developers can make the use of their buildings easy for all people, be this through the introduction of "Braille trails", specialised facilities such as child-minding centres or special focus on children or the elderly, this is welcomed.

11.4 Although individual lots are small, it is anticipated that the assembly of development sites will more commonly involve the consolidation of two or more lots. Regardless of whether this occurs or not, there is an express intention to limit the number of vehicular driveways across the sidewalks on any given block frontage. This is largely the rationale for the creation of the non-user servitudes that traverse each block, thereby rationalising vehicular access. It is the intention to utilise the servitudes to gain vehicular access to the potential parking courts at the centres of blocks and promote the pedestrian permeability of the blocks themselves. It is also the intention to promote most, if not all vehicular access and egress for each individual lot via these lanes thus keeping the sidewalks as free of vehicular crossovers as possible.

11.5 It is further the intention that the system of mid-block lanes so created will also be used for service deliveries, provision of utilities and refuse collection.

12. SECURITY, FENCING, DEFENSIBILITY AND NATURAL SURVEILLANCE

12.1 With the emphasis on street-related architecture, it is the express intention that little or none of the street frontage be made up of perimeter security other than in the design of the building itself.

12.2 It is the intention that the building be designed onto its public edges in such a way that the security of the building and the lot itself becomes a consequence of the building's design. At the same time care must be taken to ensure that surveillance of the public environment from within the building is promoted to a high degree.

12.3 The security of the building and lot can be designed as an integral part of the building's architecture in many ways:

- The perimeter of the building should be as continuous and with as few breaks as possible relative to the lot's perimeter;

- The ground floor of the building may be disengaged from sidewalk level by an amount not exceeding 1.2m, thus removing lower floor window sill heights from street level both for security and privacy reasons, while increasing the level of surveillance of the street from within the building;

- Basement ventilation slots thus presented to the sidewalk may be made safe by means of attractive grilles and further made impenetrable with planting and low level picket rails;

- Roller shutter grilles securing access to driveway and parking areas should be disengaged from the sidewalk line and be visually permeable in order to maintain surveillance of the public domain;

- Discreet, unobtrusive security systems, such as electronic beams (often combinations of infrared and radio) or closed circuit television can be used to safeguard the building;

- Lower level windows may be designed as non-opening elements with or without smaller pane sizes;

- Smaller pane sizes, in the context of the building's design ethic, can be used in ground-related windows to create burglar proofing by virtue of mullion spacing.

12.4 Barbed wire, razor wire, spiked toppings to walls, broken glass inlays to wall tops or any similar measure not designed as an integral part of the building's architecture is expressly forbidden on any frontage or other instance where it would be visible to any neighbouring or public view.

12.5 Where fencing, hedges or walling (other than the building itself) is to be used on any public street boundary, such use is to be limited, on any one boundary, to:

- A length not exceeding 18m where the height does not exceed 700mm;
- A length not exceeding 10m where the height does not exceed 1.2m;
- A length not exceeding 5m where the height does not exceed 1.8m.

12.6 Where fencing, hedges or walling (other than the building itself) is to be used on any common side boundary between lots, such use is to be limited, on any one boundary, to:

- A length not exceeding 36m where the height does not exceed 1.8m
- A length not exceeding 10m where the height does not exceed 2.5m
- A length not exceeding 5m where the height does not exceed 4m

12.7 Where fencing, hedges or walling (other than the building itself) is to be used on any lot boundary facing onto the interior parking court area within a block, such use is to be limited, on any one boundary, to a length not exceeding 54m where the height does not exceed 1.8m.

12.8 Any fence, hedge or wall is subject to the approval of the Committee and must be in keeping with the architectural ethic of the building. Any fencing or wall material is to be of properly rendered and treated metal, timber or masonry and is to comply with the colour provisions of the Manual. Diamond mesh or any other mesh not constituting a grille design in keeping with the building's architecture, together with split-pole, untreated stock brick or concrete block or precast concrete product, unless approved by the Committee, is expressly forbidden.

13. TREATMENT OF PARTICULAR ARCHITECTURAL ASPECTS OF THE BUILDING

13.1 Buildings are to express the dignity, elegance and stature befitting a town centre. In general, the manner in which the building meets the ground requires important consideration, be this a solid meeting between the building's base and the ground line/sidewalk (as in the case of a building set on a plinth, for instance), or a building set down onto the pavement level and appearing to penetrate into the ground with the basement levels being an extrusion of the building's form. Where a building is consciously designed to hover off the pavement level, such disengagement is nevertheless to observe the requirements of an active, positive relationship between the building and its surroundings as set out elsewhere in the Manual.

13.2 The emphasis is placed on elegance, be this in the spirit of the building, the lightness with which it relates to its surroundings or the dignified solidity of a strongly composed building. Explicit reference in the design rationale of the building is to be made to the manner in which the mass and form of the subject building responds to adjacent buildings.

13.3 The conscious horizontal layering and composition of the building is encouraged with care being taken with the careful proportioning of the plinth, for example, to the building's tide line, canopy line, awnings or colonnade, its general façade, its cornice line, frieze, parapet or other manner of the façade meeting the building's roof element.

13.4 While the horizontal composition as set out above is important, a conscious concern must be shown for the manner in which this layering relates to that of adjacent buildings or, where adjacent buildings have not yet been developed, how a reciprocal relationship is invited. For this reason it is required that all facades facing onto the street or looking into the mid-block court include, whether subtly or overtly, two 'tide-lines' – horizontal lines 8 m and 12m respectively above the sidewalk level to which a building relates. Particular attention is to be paid to the relationship of these tide-lines to those of adjacent buildings. It is noted that the intention of the tide-lines is not necessarily to create a consistent level from one building to another but rather to create an awareness in design of how one building relates to another. Thus, while the tide-lines of one building may vary only slightly, or very significantly from an adjacent development, the architect is encouraged to explore the design implications of these similarities or disparities, as the case may be.

13.5 In creating a well-defined street architecture, a strong definition of and response to the sidewalk, the promotion of sidewalk activities and a human scale of enclosure, continuity and shelter from sun and rain, buildings are encouraged to adopt specific

sidewalk responses. These include the use of colonnaded building edges, canopies with support structures straddling the sidewalk, canopies and awnings that cantilever over the sidewalk, or buildings which have first and second floor verandahs running the length of street frontages above canopies straddling the sidewalk. As with other element of horizontal composition, the architect is to demonstrate to the Committee how any of the above devices are to relate to those of adjacent developments, whether existing or yet to be built.

13.6 The vertical modulation of the building is important in defining a street architecture that is composed of the complex relationship of many contiguous buildings. Extensive, unrelieved facades are discouraged and any singular module of a building's façade should not exceed 6m to 9m without being expressed as an integral part of a larger order.

13.7 The overall proportioning system employed in the building's design is to be a conscious rationale in reconciling the building's horizontal and vertical orders and the fenestration and composition of the building's entrance. All apertures and fenestration should be consciously considered in a proportional system that brings all windows, doors and recesses into a relationship with the façade's overall modulation. The proportioning system used, be it strictly stylised, referential or contemporary, is almost the single most important aspect of the building's design and the manner in which it is used in arriving at the building's design is to be clearly demonstrated to the Committee.

13.8 While sunscreen devices, balconies, colonnades, canopies, awnings and multi-planar facades are welcomed, eaves overhangs of all descriptions are discouraged by virtue of the strong domestic, suburban and office park-like qualities they convey. In promoting an urban scale and ethic of architecture, the height of the façade itself is to be as accentuated as possible with it dominating in the juncture of the façade to the roof element. Crisp, trim junctions between façade and roof, with underplayed reference to gutters and rainwater goods, is to be encouraged as well as the continuation of the façade up beyond its meeting with the roof.

13.9 Although an overall complex roofscape is encouraged, this is not to be achieved by any single roof dominating the overall composition of the building to which it relates. Thus, while distinct roof forms such as very steep pitches, mansard and dormer roofs, as well as disengaged roofs that appear to hover off the building's main structure or step back from the parapet of the building's façade are encouraged, the proportioning of the roof element to the façade should always respect the dominance of the façade. While bearing in mind the recessive nature of the roof when viewed from street level, care should be taken not to over-scale it relative to the rest of the building when viewed from a distance.

13.10 The above is not to imply that the treatment of the roof as an essential element of the architecture is unimportant. The consciousness with which the roof is considered as an integral part of the building's composition is vital and the architect is to demonstrate to the Committee the intentions implicit in how the building meets the sky, its relationship to the skyline and those of adjacent buildings when viewed from various positions.

13.11 The systematic occurrence of corner buildings in the town centre's typical street-grid, together with the many unique acute-angled corners formed by the diagonal

boulevards and avenues that slice through the grid, require that particular attention be given to the accentuation and/or detailing of prominent corners of buildings. Architectural accentuation is also required, both in terms of height and stature as well as elaboration and detailing, on sites where axial vistas focus on potentially prominent developments. Where an architect chooses not to respond to a build-to line in respect of a corner property (and particularly an acute-angled corner), the corner is nevertheless to be celebrated in its landscaping, be this soft planting and trees or hard surfacing and the making of an urban court or widening of the sidewalk.

13.12 All plant and equipment, including antennae and satellite dishes or cellular communication equipment, if not designed as an integral part of the architecture of a building, is to be hidden, suitably screened or made to appear as a designed element of the buildings. Should plant and equipment be housed on the roof of the building, it must comply with the guidelines associated with roof design and may not, in any way, impair the views from adjacent developments or developments elsewhere in the town centre. All air conditioning equipment, whether centralised, split or individual must either be entirely hidden within the architecture of the building or be expressed as a conscious intention within the building's design. All gutters, rainwater goods, plumbing, cabling, lighting or signage is to be concealed within the design of the building's façade or as an integral part of the architectural ethic.

14. SIGNAGE, LIGHTING AND GRAPHICS

14.1 In respect of all signage placed on a building façade visible to any public, semi-public or neighbouring property, all buildings approved by the Committee are to indicate a zone or zones designed as integral parts of the building's architecture, which are to be designated for the placement of such signage. Such designated zone or zones, together with a signage code prepared by the building owner and architect and approved by the Committee for inclusion in any tenant lease agreement, is to be the sole basis of any signage on the building's exterior.

14.2 No sign may be displayed on any exterior façade of a building without first obtaining the approval of the Committee.

14.3 The naming of buildings themselves (which may well include the name of a corporation, enterprise or organisation), rather than the naming of any corporation, organisation, company or product alone, is encouraged. Naming rights to any single building is to be exclusive to one tenant or occupier alone and any application to the Committee for approval of a sign in respect of naming a building must be accompanied by the written granting of such naming rights by the building's owner. In the case of a building, or complex of buildings, designed so as to create clearly identifiable and unambiguous wings, the Committee may, where individual design merits warrant it, agree to more than one name being given to such components of the building or complex as long as not more than one such name relates to an individual component.

14.4 The signage of each of multiple tenants occupying a building may be displayed on the façade of the building within a zone not exceeding 8m from the sidewalk level to which the building relates. Again, while this naming may include reference to a

corporation, enterprise or organisation, it is not the intention to advertise product on the façade in this zone. All advertising of product is to be within the leased area of the shop, office or commercial undertaking. All signage in this respect is to be undertaken by professional designers and sign manufacturers and in terms of a code prepared by the developer, approved by the Committee and included in the standard tenant lease agreement.

14.5 No sign is to be displayed at a point above the line where the dominant façade of a building meets the transition with the building's roof element or, in the case of a parapet façade, beyond the height of the parapet itself.

14.6 No characters nor items of a sign may exceed 750mm in height and the sign as a whole may not exceed 6m in length provided that the Committee may, in the individual circumstances of a development, decide that such size may be inappropriate and reduce or increase such sizing parameters.

14.7 Should the sign envisaged not suit the proportions noted above, the guide will be followed that the overall area of the entire sign shall not exceed 4.5 m^2 subject to the proviso noted in 14.6 above.

14.8 No sign on any façade of a building, save with the consent of the Committee in cases of individual design merit, may be affixed to a board and then attached to the building. All elements of such a sign are to be affixed by means of concealed fixings and disengaged from the plane of the façade itself. Such signs are to be manufactured of high quality, durable and colourfast materials, preferably of natural or coated aluminium, brass, copper or stainless steel. Plastic or Perspex signs and signs painted directly onto the façade of a building are discouraged and, where plastic or Perspex is to be used, it should be rendered with a matt finish. The lighting of signs should be backlit or lit from a remote, hidden source unless such lighting is designed as an integral part of the sign and, hence, of the building. Signs manufactured of opaque, translucent material and lit from within are discouraged as is the use of neon lighting. Moving, flicking or flashing signage, whether in terms of articulated elements of the sign or in terms of lighting, is expressly prohibited.

14.9 Each building is to have its street address displayed prominently, preferably at the main street entrance of the building. Such signage is to be in keeping with the character of the building and should be consistent with a signage "language" developed for the building as a whole in terms of typography, scale, material, fixing and lighting. Address signage facing onto the parking court area within any block is encouraged provided it is of an under-stated nature.

14.10 Flood or accent lighting of building facades or elements of the building is encouraged provided that it is within an ethic of understatement, enhancing of the town centre's group form, of neutral colouring (save for, in the Committee's opinion, appropriate points of accent or cases of individual design merit) and so as not to spill excess light into the sky nor create any glare onto the adjoining street or development. All such lighting is to be from a remote, hidden source or from light fittings designed as an integral part of the building's architecture.

14.11 Teardrop freestanding banners, free standing temporary signboards, banners, rotating (whirligig) signs, sandwich boards, bunting, sails, posters, balloons, blimps or other inflatable devices are all prohibited. The erection of flags is prohibited unless

specifically approved by the Design Review Committee. In the event of such approval, the flags shall at all times be maintained in compliance with the conditions of approval and the rules of the Association and in a condition that in the opinion of the Town Manager is acceptable.

15. LANDSCAPING GUIDELINES

15.1 The Landscaping Ethic

15.1.1 The intention is to landscape sites so as to enhance the architecture of the building, create a significant greening of the town fabric and add to the planting of the private, semi-private and public domains of the town. While the town is essentially an urbane setting, it is an express intention to restore to towns the green dimension that has tended to be lost in contemporary cities and enhance the human, pedestrian and natural qualities and comforts afforded by high quality landscaping. In light of these intentions, the building's architect shall submit for the approval of the Design Review Committee, plans indicating the landscaping intentions for the site in terms of planted area and form as well as associated structural, waterproofing and other details. The Committee shall have the right to insist on the appointment of a landscape architect to take the Architect's design intentions to completion or may permit the completion of a "design and install" brief by a recognised and experienced landscaping contractor.

15.1.2 As far as possible, with 90% being applied as a guide, all planting is to be indigenous. Landscaping plans are to list and motivate plant types proposed for use and are subject to approval by the Committee. Planting palettes are available through the Committee listing plants considered appropriate for use in the mixed-use zone, as well as specifics of their application. While not mandatory, these palettes should be used as a guide and indication of the landscaping intentions for the mixed-use zone. Planting shall also be properly irrigated and designed with conscious attention to routine maintenance.

15.1.3 Save with the Committee's consent in cases of individual design merit, a minimum of 20% of the site's area is to be landscaped in terms of a professionally prepared landscaping plan detailing all earthworks, paving, water features, planters and planting together with the associated irrigation arrangements, structural details to accommodate the landscaping and maintenance specification. The 20% is to be regarded as both hard and soft landscaping areas. Both the plan and the actual completed installation shall be subject to the specific approval of the Committee.

15.1.4 Where, in the opinion of the Association, a site is inadequately landscaped or poorly maintained, the owner of such site is obliged to rectify the situation failing which the Association will have the right to undertake such remedial action to the account of the owner. In the case of undeveloped sites no longer in the ownership of the Primary Developer, such sites are to be planted and maintained without any other interim use of the site being permitted other than for purposes permitted in terms of the site's zoning or for properly constructed and landscaped parking purposes.

15.2 Landscaping related to parking facilities

15.2.1 Where a site is used primarily for surface parking purposes, whether on a temporary or permanent basis, a minimum of 20% of the site, (75% of which must be free of all parking and driveway areas), is to be landscaped and maintained according to an approved landscaping plan. Attention in such landscaping plan is to be paid to the planting of both perimeter and canopy trees of stature and the screening of parked vehicles from public view.

15.2.2 In the event of a site being developed principally as a parking structure above ground, a minimum of 15% of the site's area is to be landscaped and maintained according to an approved landscaping plan. Attention in such landscaping plan is to be paid to the planting of the façade of such structure and the planting of perimeter trees of stature. Attention is also to be paid to the planting at the base of the structure where it meets the ground.

15.2.3 In the case of sites being developed principally as underground parking structures, such structure may not project more than 1.2m above natural ground level at any given point and not less than 15% of the site area is to constitute soft landscaping with the balance of the site being properly constituted hard landscaping. All landscaping and maintenance is to be in terms of an approved landscaping plan in terms of which attention is to be paid to perimeter tree planting of stature and planting at the structure's perimeter to screen the edge of the structure and any ventilation slots or mechanical plant associated with the structure.

15.3 Landscaping in respect of prominent and corner sites

Certain prominent sites, such as corner sites and, more particularly, corner sites formed by acute angled intersections warrant particular landscaping attention. In cases where such sites are designated as having build-to lines and require a particular architectural response, the conscious design of a landscaping response in lieu of an architectural response may be approved by the Committee in cases of individual merit.

15.4 Landscaping in relation to safety and surveillance

15.4.1 Particular attention in landscaping is to be paid to the extent to which such landscaping both achieves and enhances the security arrangements of a site as well as the general safety, surveillance and defensibility of the public environment and that of neighbouring sites.

15.4.2 In this regard attention should be paid to planting not becoming a screen or creating dark areas that facilitate lurking or which unduly restrict natural surveillance of the areas surrounding a building (particularly the street) either by occupants of the building or by those passing by the building or lot.

15.5 Boundary-related landscaping

15.5.1 Landscaping within or on the boundary of a development facing onto a street or public space is to be undertaken so as to make a conscious contribution to both the architecture of the development (how it is composed, meets the ground or set within the site) and the public environment onto which it faces.

15.5.2 As a minimum sidewalk treatment, the Primary Developer undertakes to provide a paved sidewalk width of 1.84m and planters and trees as set out in the Precinct Plan. It is the responsibility of individual developers to address the interface of their sites with the adjacent sidewalk and surfacing treatment and to include this aspect as an integral part of the landscaping plan prepared for the site.

15.5.3 Landscaping and maintenance of the sidewalk areas adjacent to a development is encouraged and is to be as provided for in the terms of the sidewalk servitude agreement. Where sidewalk areas have not been paved to the full width of the road reserve, an adjacent owner may extend such paving over all or some of the remaining area provided that paving materials and patterns are subject to approval by the Design Review Committee. Any planting or planters placed within the sidewalk area are to be so as to enhance the prevailing streetscape, permit ease of pedestrian circulation and promote the safety and surveillance intentions of the town centre.

15.5.4 Landscaping and maintenance of any common side boundary between developments is to be undertaken with due regard to the mutual benefits to be derived from such planting and so as to promote the safety and surveillance requirements of both parties. Careful attention is to be paid to the extent to which such boundary planting is in keeping with and enhances the architecture of developments on both sides of the boundary and takes due cognisance of the outlook, shading and screening requirements of both parties.

15.6 The role of landscaping in creating the inner-core of each urban block

15.6.1 The inner-core of each block is as important as the street frontage of a site and the landscaping of that developable portion of a site fronting onto the inner-core must reflect this importance. The edge-condition defining the transition of the developable portions of the site to the inner core should be expressed as the conscious making of a collective urban square. The inner-core of a block is to be regarded as a semi-private urban court or park and security edges, if applied at all, are to be kept to the boundary of the site adjoining the inner core.

15.6.2 With the inner-core of the block thus defined, developers are encouraged to approach the landscaping interface with the inner-core as a collective expression of a single, common space. The development of semi-private, picket-railing enclosed gardens is encouraged together with the formation of a mid-block series of lanes designed to serve access to each lot, service vehicles and deliveries and refuse collection. Well-landscaped, combined surface parking lots are encouraged as are combined basement parking facilities within this zone. Care is to be taken to handle hard landscaped

areas as conscious expressions of the landscaping intentions for the inner-core. As with other public and semi-public landscaped areas, care is to be taken in achieving well-designed, secure and pedestrian-friendly environments. In most instances, the inner core of the block has been pre-designed, and developers are required to comply with detailed requirements arising from this design in respect of their developments' relationship to the core.

15.7 **Landscaping budget**

The owner is to make provision for a landscaping budget equal to 3% of the building costs with at least one-third of this budget being allocated to planting and the balance to hard/ structural landscaping. If required by the Committee, the owner's Quantity Surveyor is to confirm the cost of the hard/structural landscaping.

ANNEXURE A: MATERIALS AND COLOURS APPLICABLE FOR MIXED USE SITES

PRIMARY MATERIALS (MIN 70% of any façade including roof)

PRIMARY BUILDING FAÇADE MATERIALS

BUILDING FAÇADES	ROAN SATIN FACEBRICK	ROAN TRAVERTINE FACEBRICK	SPANISH TERRACOTTA SATIN FACEBRICK	SPANISH TERRACOTTA TRAVERTINE FACEBRICK	TOPAZ TRAVERTINE FACEBRICK	BERGENDAL LIGHT SATIN FACEBRICK	BERGENDAL BLEND SATIN FACEBRICK	COUNTRY COTTAGE TRAVERTINE FACEBRICK	TERRACOTTA SATIN FACEBRICK	TERRACOTTA TRAVERTINE FACEBRICK	FIRELIGHT SATIN FACEBRICK	FIRELIGHT TRAVERTINE FACEBRICK	MONTANA TRAVERTINE FACEBRICK	DE HOOP RED TRAVERTINE FACEBRICK	DE HOOP RED SATIN FACEBRICK
STREET FAÇADES															
REAR SPACE FAÇADES															
VISIBLE SIDE FAÇADES															
ABUTTING SIDE FAÇADES															

PRIMARY COLOURS (Min. 70%)

PRIMARY BUILDING FAÇADE COLOURS

BUILDING FACADES	EARTHY RED	FIRED CLAY RED	OCHRE	TERRACOTTA	FIRED IRONSTONE	MUSHROOM	BISCUIT/BEIGE	DUSKY PINK	DUSTY YELLOW	LIGHT GREY	DOVE GREY	DEEP GREY	CHARCOAL	WHITE	SILVER
STREET FACADES															
REAR SPACE FACADES															
VISIBLE SIDE FACADES															
ABUTTING SIDE FACADES															

SECONDARY BUILDING FAÇADE MATERIALS

SECONDARY MATERIALS (Min. 20%)

BUILDING FACADES	PRIMARY FACEBRICKS SPECIFIED	GRANITE	MARBLE	SANDSTONE	SLATE	TERRACOTTA TILING	PLASTER AND PAINT	HULABOND PANELS	CLEAR GLAZING	SMOKEY GREY GLAZING	LIGHTLY SILVERED GLAZING	PLASTER UNPAINTED			
STREET FACADES	■	■	■	■	■	■	■	■	■	■	■				
REAR SPACE FACADES	■	■	■	■	■	■	■	■	■	■	■				
VISIBLE SIDE FACADES	■	■	■	■	■	■	■	■	■	■	■				
ABUTTING SIDE FACADES							■					■			

PRIMARY BUILDING FAÇADE MATERIALS

PRIMARY MATERIALS (Min. 70% of any façade, including roof)

BUILDING FACADES	GRANITE	MARBLE	SANDSTONE	SLATE	TERRACOTTA TILING	PLASTER AND PAINT	HULABOND PANELS	CLEAR GLAZING	SMOKEY GREY GLAZING	LIGHTLY SILVERED GLAZING	PLASTER UNPAINTED										
STREET FACADES	■	■	■	■	■	■	■	■	■	■											
REAR SPACE FACADES	■	■	■	■	■	■	■	■	■	■											
VISIBLE SIDE FACADES	■	■	■	■	■	■	■	■	■	■											
ABUTTING SIDE FACADES							■				■										

SECONDARY BUILDING FAÇADE COLOURS

SECONDARY COLOURS (Max. 20%)

BUILDING FACADES	EARTHY RED	FIRED CLAY RED	OCHRE	TERRACOTTA	FIRED IRONSTONE	LIGHT GREY	DOVE GREY	DEEP GREY	CHARCOAL	WHITE	SILVER	CEMENT			
STREET FACADES	■	■	■	■	■	■	■	■	■	■	■				
REAR SPACE FACADES	■	■	■	■	■	■	■	■	■	■	■				
VISIBLE SIDE FACADES	■	■	■	■	■	■	■	■	■	■	■				
ABUTTING SIDE FACADES												■			

ACCENT BUILDING FAÇADE MATERIALS

ACCENT MATERIALS (Max. 10%)

BUILDING FACADES	PRIMARY FACEBRICK SPECIFIED	GRANITE	MARBLE	SANDSTONE	SLATE	TERRACOTTA TILING	PLASTER AND PAINT	HULABOND PANELS	CLEAR GLAZING	SMOKEY GREY GLAZING	LIGHTLY SILVERED GLAZING	COLOURED GLAZING	MIRROR GLAZING	PLASTER UNPAINTED	
STREET FACADES	■	■	■	■	■	■	■	■	■	■	■	■	■		
REAR SPACE FACADES	■	■	■	■	■	■	■	■	■	■	■	■	■		
VISIBLE SIDE FACADES	■	■	■	■	■	■	■	■	■	■	■	■	■		
ABUTTING SIDE FACADES														■	

ACCENT BUILDING FAÇADE COLOURS

ACCENT COLOURS (Max. 10% and not more than 4 of)

BUILDING FACADES	WHITE	BLACK	MIDNIGHT BLUE	NAVY BLUE	INDIGO	COBALT BLUE	FOREST GREEN	DEEP FOREST GREEN	GUNPOWDER GREY	GUNMETAL GREY	SLATE GREY	STAINLESS STEEL	SILVER-GREY	CHROME/SILVER	OXBLOOD RED	NAPOLI
STREET FACADES	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
REAR SPACE FACADES	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
VISIBLE SIDE FACADES	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
ABUTTING SIDE FACADES																

ROOFING MATERIALS

ROOFING MATERIALS

ROOFS	CONCRETE SLAB WITH CRUSHER STONE	CONCRETE SLAB WITH PEBBLES	CONCRETE SLAB WITH PAVING	CONCRETE SLAB WITH TILE	ALUMINIUM PROFILED SHEETING	PRE-COATED PROFILED SHEETING	CLAY ROOF TILES	CONCRETE ROOF TILES	SLATE SHINGLES	FIBRE CEMENT SHINGLES	WOOD SHINGLES
FLAT SLABS	■	■	■	■							
LOW PITCHED SHEETING					■	■					
SHARPLY PITCHED SHEETING					■	■					
TILED							■	■			
SHINGLE									■	■	■

ROOFING COLOURS

ROOFS	WHITE	LIGHT GREY	DOVE GREY	CHARCOAL	BLACK	DEEP FOREST GREEN	EARTHY RED	CLAY RED	TERRACOTTA
FLAT SLABS	■	■					■	■	■
LOW PITCHED SHEETING	■	■	■	■	■	■	■	■	■
SHARPLY PITCHED SHEETING	■	■	■	■	■	■	■	■	■
TILED		■	■	■	■	■	■	■	■
SHINGLE		■	■	■	■	■	■	■	■

PAVING MATERIALS

HORIZONTAL SURFACES	CLAY PAVERS	TERRACOTTA PAVERS	NATURAL STONE/GRANITE	SIMULATED STONE	CONCRETE PAVERS	CONCRETE FLAGSTONES	CONCRETE GRASS BLOCKS	TARMAC
DRIVEWAYS	■		■	■		■	■	
SIDEWALKS	■	■	■	■		■		
PATHS	■	■	■	■		■		
SURFACE PARKING	■	■		■		■		
BASEMENTS					■			■

PAVING COLOURS

PAVING COLOURS

HORIZONTAL SURFACES	BURGUNDY	EARTHY RED	CLAY RED	LIGHT GREY	CHARCOAL	SLATE	BLACKTOP
DRIVEWAYS	■	■	■	■	■	■	
SIDEWALKS	■	■	■	■	■	■	
PATHS	■	■	■	■	■	■	
SURFACE PARKING	■	■	■	■	■	■	
BASEMENTS				■	■		■

RETAINING WALLS AND COLOURS

RETAINING STRUCTURES

RETAINING STRUCTURES	FACEBRICK AS SEPCIFIED	PLASTER AND PAINT	TERRAFORCE WITH PLANTING	OFF-SHUTTER HIGH QUALITY CONCRETE	EARTHY RED	FIRED CLAY RED	OCHRE	TERRACOTTA	FIRED IRONSTONE	LIGHT GREY	DOVE GREY	DEEP GREY	CHARCOAL	WHITE	SOIL AND VEGETATION	GEOFABRIC AND VEGETATION
DWARF WALLS	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
LARGE WALLS	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
EMBANKMENTS															■	■

GLAZING

FAÇADE USAGE	GLAZING APPEARANCE											
	CLEAR	LIGHTLY SMOKED	LIGHTLY SILVERED	LIGHTLY FROSTED	LIGHTLY COLOURED	SILVER MIRRORED	DARK MIRRORED	COLOUR MIRRORED	DARKLY SMOKED	BLACK OPAQUE	STRONGLY COLOURED	HEAVILY FROSTED
PRIMARY GLAZING	■	■	■	■	■							
SECONDARY GLAZING					■							
ACCENT GLAZING					■	■	■	■	■	■	■	■
CAMEO GLAZING								■	■	■	■	■

CANOPIES AND AWNINGS

MATERIALS	COLOURS																				
	NATURAL	WHITE	BLACK	MIDNIGHT BLUE	NAVY BLUE	INDIGO	COBALT BLUE	FOREST GREEN	DEEP FOREST GREEN	GUNPOWDER GREY	GUNMETAL GREY	SLATE GREY	STAINLESS STEEL	SILVER-GREY	CHROME / SILVER	OXBLOOD RED	NAPOLI	CLEAR	SMOKED GREY			
CANVAS	■	■	■	■	■	■	■	■	■	■	■	■				■	■					
POLYTHENE		■	■	■	■	■	■	■	■	■	■	■		■		■	■					
ALUMINIUM SHEETING	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
ALUMINIUM SYSTEMS	■	■	■	■	■	■	■	■	■			■	■		■	■	■					
GLAZING										■	■	■		■	■			■	■			
POLYCARBONATE FLAT SHEET										■	■	■						■	■			
POLYCARBONATE MOULDING										■	■	■						■	■			
WOOD	■	■	■	■	■	■	■	■	■	■	■	■				■	■					

ANNEXURE B: FIRE REPORT – MIXED USE CITY BLOCKS

The attached report was commissioned by the Primary Developer to give guidance as to the principles applicable to the design of buildings on a typical mixed-use city block from a fire perspective. It is included in this manual for information only and to assist developers in achieving consistency in the treatment of fire aspects in such circumstances. The inclusion of the report in this manual does not in any way replace or detract from the requirement that each individual development should be designed with input from appropriate experts to meet with all statutory and other constraints pertaining to fire and fire safety.

UMHLANGA RIDGE NEW TOWN CENTRE
MIXED USE CITY BLOCKS

REPORT ON THE CRITERIA FOR EVALUATING THE IMPACT OF PERIPHERAL "CLIP ON" DEVELOPMENTS ON THE CENTRALISED PARKING FACILITY AS THEY IMPACT ON THE OVERALL FIRE RISK

FOR

MORELAND DEVELOPMENT (PTY) LTD

SPECIALIST FIRE CONSULTANTS

DELEN & OUDKERK

SEPTEMBER 2002

UMHLANGA RIDGE NEW TOWN CENTRE
MIXED USE CITY BLOCKS

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UMHLANGA RIDGE NEW TOWN CENTRE
MIXED USE CITY BLOCKS

REPORT ON THE CRITERIA FOR EVALUATING THE IMPACT OF PERIPHERAL "CLIP ON" DEVELOPMENTS ON THE CENTRALISED PARKING THEME AS THEY IMPACT ON THE OVERALL FIRE RISK

Introduction

Within any city development, the provision of parking facilities has become of prime importance in order to prevent the vehicular congestion associated with the existing city centres. In order to alleviate this problem, Moreland, the developers of the Umhlanga Ridge New Town Centre, have introduced a new approach to providing the required parking facilities.

Each city block will have a centralised parking garage, usually consisting of a semi- basement and possibly a ground floor level parking facility. The dimensions of each parking facility may differ slightly according to the overall size of the city block. Individual developments would then clip onto the perimeter of the parking garages. These individual developments usually consist of a semi- basement parking facility which interconnect with the core parking garage, and the required number of floors above ground. The fire risk will therefore increase as the block is developed, due to the interconnections to the common semi-basement parking facility.

During the course of compilation of this document, we first of all tried limiting the fire risk between interconnected buildings by limiting fire compartment size to 2 500 m^2. This would be acceptable within a single building of single or varying occupancies within a limited scope, (as set out in point 2.iii below). However, when one has two or more separate buildings, it would be unacceptable to an owner / occupier of these separate buildings, for the fire safety in one building to be compromised by the conditions inherent in an adjacent building. This criterion is central to the Safety Distance requirements of the National Building Regulations, (NBR's).

This report has therefore been drafted in order to provide a working document which will mitigate against the increased fire risk as the clip on developments impact on the centralised parking theme. In most cases, the deemed to satisfy rules of the, (NBR's) have been paraphrased.

1. Impact of Perimeter Developments on Semi-Basement Core Parking With Particular Regard To Smoke Ventilation

i. Each semi basement core parking facility, (Occupancy J4), requires natural cross ventilation at the rate of 3% of the floor area for smoke ventilation and 5% of the floor area for health requirements. Therefore complying with health mitigates against the need for any mechanical ventilation, and automatic sprinklers. Smoke ventilation is generally catered for by open slots through the upper level slab of the parking facility.

ii. In general, smoke will travel 60 metres laterally before entraining sufficient cold air to cool it to the point where it will drop and smoke log the facility. This is not expected to become a criterion given the dimensions of the core, however, it may be overcome by providing additional openings in the ground floor roof slab of the core parking garage.

iii. In order not to impact on the central parking facility's smoke / health ventilation, each perimeter development having its own semi basement parking will require its own 3% ventilation. The construction of a building must not impact on the perimeter ventilation openings of the core parking facility. Where it is not possible to meet the additional 3% criteria, (ie. perhaps a building with only one elevation abutting the parking facility), the clip on development will have to undertake its own additional measures in compliance with the NBR's.

2. Impact of Perimeter Developments on Semi-Basement Core Parking With Particular Regard To Division Area and Occupancy and Divisional Separation

i Regulation A20 of the NBR's stipulates that two or more areas of a building, having different primary functions, shall be separately classified, (ie. the parking garage will always retain its occupancy classification of J4, whilst each clip on development will be classified according to its function, in other words, any corporate offices will be G1, for example. The floor area of the J4 will have no impact on the division area of the G1.

ii There is no limit to the floor area of an unsprinklered parking garage**,** provided the natural smoke ventilation requirement of 3% of the floor area, evenly distributed, has been met.

iii There is no requirement for Occupancy Separation between a parking garage, (J4), and the following occupancies, or between any two of such occupancies:

- Moderate and low risk commercial - B1,B2;
- Moderate and low risk industrial, and plant rooms - D2, D3, D4;
- Large and small shop, and wholesalers store - F1, F2, F3;
- Offices - G1;
- Moderate and low risk storage - J2, J3.

iv With regard to point iii above, the overriding problem is that the common core parking garage interlinks all of the peripheral buildings. It is therefore not impossible that a fire in one building could spread to one or more of the interlinked peripheral buildings via the semi-basement parking garage. This would then take precedence over Occupancy Separation allowances set out in 2.iii above.

There are basically two options to overcome this problem.

a) Create a fire compartment at the interface between the core parking garage and the peripheral development parking garage, using a fire wall and a sliding fire door for example. When this option is used, it becomes critical that two means of escape have been provided from the developers parking garage, because when the sliding fire door has closed, one alternative means of escape has been lost.

b) Create a fire compartment at the semi-basement entrance to each peripheral building, (ie. at lift lobbies and staircases), using Class B fire doors. These doors could be held open, and close on smoke detection. Dorma have a range of door closers with integrated smoke detectors.

v With regard to a) and b) above, should a fire spread from the core parking to a peripheral parking area, and that area has been provided with a sliding fire door, the fire door will close when the fusible link temperature has been reached, thus cutting off that particular building from the adjacent buildings. Similarly, if smoke reaches the lift lobby and or an emergency stair access point to the any of the peripheral buildings having fire doors at these points, the fire doors will close automatically, cutting the building off from adjacent buildings..

3. Impact of Perimeter Developments on Semi-Basement Core Parking With Particular Regard To Safety Distances Between Structures

As stated in the introduction, building to building safety distances are designed to prevent fire spread between separate buildings. In other words, conditions in one building should not impact on the safety of the occupants and or functioning of an adjacent building. The NBR's stipulate the requirements for various types of external walls.

i. **Fire Resisting Walls - No Openings**

Where an external elevational wall of one building faces an external elevational wall of an adjacent building, and the walls have the required fire resistance and no door or window openings, there is no restriction in safety distances between buildings, (ie. buildings may be built on their lateral boundary.

The area of openings of windows etc. on any floor, (which floor is a fire compartment), would determine the distance required from the boundary, read from the relevant column of Table 2 page 160 of the NBR's. These distances are in the range of 1 metre to 12 metres depending on the occupancy classification of the building.

ii **Fire Resistance Less Than Required But Stability and Integrity Complies**

This type of wall primarily refers to external steel cladding usually found on industrial type buildings. Where this type of wall has no openings, the required minimum distance from the boundary ranges between 1 metre and 2 metres depending on the occupancy type. (See Column 2 of Table 2 page 160 of NBR's).

The area of openings of windows etc. on any floor, (which floor is a fire compartment), would determine the distance required from the boundary, read from the relevant column of Table 2.

iii **Combustible External Walls**

This type of wall could be constructed of for example, polycarbonate. It is regarded as a full opening. The area of the wall would then be calculated and the distance from the boundary read of from the relevant column of Table 2.

iv **Effect Of Automatic Sprinklers**

Should a building be sprinkler protected, the required boundary distance may be halved to a minimum of 1 metre.

4. **Impact of Perimeter Developments on Semi-Basement Core Parking With Particular Regard To Separation of Fire Divisions**

Due to the requirement that conditions in one building should not impact on the safety of the occupants and or functioning of an adjacent building, fire spread through the perimeter smoke ventilation openings could have an effect on a building situated directly above these openings.

To overcome this, there are two options:

a) The building should be set back 5 metres from the smoke ventilation openings.

b) For a distance of 10 metres above the smoke ventilation openings, there should be no windows, and the external wall should have the fire resistance required for divisional separation within such occupancy, (given in Table 4 page 170 of the NBR's).

5. **Impact of Perimeter Developments on Semi-Basement Core Parking With Particular Regard To Means of Escape**

A typical parking core of approximately 50m x 50m would require two emergency routes of 1,1 metres wide. The vehicular ramp takes the place of one emergency route. A fully developed block could have typical dimensions of 105m x 105m, giving an overall parking core area of approximately 11 000 m^2, and a design population of
11 000 / 50 = 220 persons. The total escape width requirement would then be:
[(220) x 1,8] + 1,8 = 3,9 metres
[(190)]
from a minimum of 2 stairs and the ramp.

The overriding factor is the travel distances to the escape routes. The maximum permissible travel distance to a stair or ramp is 45 metres along the route of travel, (not between cars). The designer of each development should check that travel distances conform to the above, and if not, provide at least one emergency route from their section of semi - basement parking. Dead ends within the semi-basement are limited to 15 metres.

In the case where a developer has decided to separate his parking from the core parking by means of walls and sliding fire doors, that section of the parking will require at least two emergency route stairs located such that the maximum travel distance is not exceeded, and such that dead ends do not exceed 15 metres.

6. **Impact of Perimeter Developments on Semi-Basement Core Parking With Particular Regard To Fixed Fire Protection Facilities**

i. **Pressure /Flow Characteristics of Municipal Mains**

The core parking garage is provided with a fire ring main. Individual developments connect into the ring main at specific points to supply fire fighting water to their fixed fire equipment. Flow tests taken from a municipal fire hydrant off Millennium Boulevard on 12 September 2002 indicated the following flows / pressures being available from the 150 mm diameter municipal main:

Flow		Pressure
0	l/min	450 kPa
720	l/min	400 kPa
1 500	l/min	350 kPa
2 400	l/min	350 kPa

ii. **Fire Brigade Booster Connections**

All buildings will be provided with a dedicated fire brigade booster connection. A non return valve should be situated between each FB booster and the ring main system to ensure that only the required building's system is boosted.

iii **Fire Hydrant System**

The basic requirement is 1 200 l/minute @ 300 kPa at the farthest highest point in a building. A single fire hydrant should be situated at the core perimeter close to an access point. All areas should be accessible within a 60 metre radius of a hydrant, (ie. two lengths of fire hose).

All subsequent developments with a semi-basement area exceeding 1 000 m^2 should provide one or more fire hydrants located at an access point, subject to the 60 metre radius rule.

All buildings which are compartmented from the core at semi-basement level should provide one or more fire hydrant adjacent to their access stairs / emergency routes, provided that all areas are within 60 metres radius from the hydrant.

All buildings at or above ground level require fire hydrants at approximately one per 1 000 m^2, or within the 60 metre radius rule. Hydrants should be situated adjacent to emergency route stairs for fire brigade access. All fire hydrants must be serviced on an annual basis by law.

iv **Fire Hosereel System**

The basic requirement is 30 l/minute @ 300 kPa at the farthest highest point in a building. The NBR's require one fire hosereel per 500 m^2. Scribing an arc of radius 20 metres from a hosereel is a rough guide to the area protected by that hosereel, taking obstructions into account.

The fire hosereel system is connected to the fire hydrant system. Fire hosereels should be situated firstly around the core parking, located such that all areas are protected.

Additional fire hosereels should then be provided within all subsequent developments with a semi-basement such that all areas are protected.

All buildings at or above ground level will require additional fire hosereels on each floor as described above. All fire hosereels must be serviced on an annual basis by law.

v **Fire Extinguishers**

All purpose dry chemical powder fire extinguishers, (9kg), should be provided at the rate of approximately one per fire hosereel, in both the core parking and every subsequent semi-basement parking development. In order to discourage theft, they may be placed in banks of two or three close to security personnel. All fire extinguishers must be serviced on an annual basis by law.

vi **Automatic Sprinklers**

The effect on the provision of automatic sprinklers in a building is usually to permit the construction of larger fire compartments than is permitted in a non sprinklered building. In this case, where fire separation between two or more separate developments is important, sprinklers in themselves could not be seen as a means of allowing the interconnection of two buildings via the core parking garage. Sprinklers would therefore be required in any building which exceeded the divisional area permitted in Table 3 page 169 of the NBR's, or in any building exceeding 30 metres in height.

7. **Impact of Perimeter Developments on Semi-Basement Core Parking With Particular Regard To Fixed Liquified Petroleum Gas Installations**

i Due to its heavier than air characteristic, LPG installations should not be permitted within the semi-basement parking facilities.

ii Designers of LPG users such as restaurants or takeaways should make provision for the required LPG installation above ground, subject to the requirements of SABS 087 Part III of 1999. Plans of the proposal must be approved by the local Fire Authority before commencement of the installation.

8. **Impact of Perimeter Developments on Semi-Basement Core Parking With Particular Regard To Fire Brigade Access**

In order for effective fire fighting and or rescue to take place, the Fire Brigade require access to any building. The NBR's do not define fire brigade access - only the broad general requirements. In order to overcome this, we have described fire brigade access in broad principles, as follows:

1. **Semi-Basement Parking Garage**

i. A fire in any floor below ground level presents special problems for fire fighters. The heat from the fire rises to underside slab creating a band of hot gases. Although this will be ventilated by the smoke ventilation provided, access to the semi-basement should be provided via emergency route stairs, in order to mitigate against fire fighters having to pass through the band of hot gases.

ii. As previously stated, fire hydrants should be provided close to access points, so that they are easily accessible to fire fighters when they enter the area of risk.

iii. There is a 3 tonne weight restriction on the slab of the parking garage, so fire tender access onto the slab is not possible.

2. **High and medium Rise Buildings**

i. Rescue devices such as hydraulic platforms or turntable ladders may be used both for fire fighting and rescue purposes in a high or medium rise building. Hard standing is required for the stability of these vehicles, and there should be no overhead obstructions.

ii. Access is required to emergency routes with rising fire mains and accessible fire hydrants, for fire fighting and rescue purposes.

iii. Fire pump vehicular access should be to within 18 metres from the entrance giving access to a fire main and booster connection, and within sight of same.

3. **Typical Vehicle Access Route Specification**

Appliance Type	Min Width Between Kerbs (m) (m)	Min Turning Between Kerbs (m)	Min Turning Between Walls	Min Clear Height (m)	Min Carrying Capacity (tonnes)
Pump	3,7	16,8	19,2	3,7	12,5
High Reach	3,7	26,0	29,0	4,0	17,0

Impact of Perimeter Developments on Semi-Basement Core Parking With Particular Regard To Emergency Lighting

i Feeder and emergency routes within the semi basement car park are required to have emergency lighting. This would apply to both the core parking garage and the peripheral garages.

ii Buildings with a population exceeding 100 persons are required to have emergency lighting in the emergency routes. Standards of emergency lighting are found in TT30.2 and TT30.3.

iii Feeder routes in the following buildings require emergency lighting within their feeder routes: A1, A2, A3, A4, C1, C2, E2, E3, F1, F2.

CONCLUSION & DISCLAIMER

This document is supplementary to the National Building Regulations. It has been drafted for the specific application of the NBR's to the conditions found in the development of the URNTC. It is not meant to be used as a replacement to the NBR's, which in essence are more fully descriptive and definitive of the requirements for each and every particular type of development.

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