



C a s e
S t u d i e s

Local Government

Research Project

Best Practice

Open Space Provision

For Higher Density

Infill Development

05

Acknowledgements

The Local Government Research Project into Best Practice Open Space Provision for Higher Density Infill Development Project was initiated by the City of Charles Sturt and funded through the Local Government Research and Development Fund.

The Project was managed by the City of Charles Sturt through Allison Miller (Bretones), Manager Open Space and Recreation.

An across government reference group played a key role throughout the project by attending planning sessions and providing feedback. The members of the Reference Group were as follows:

City of Charles Sturt ___ Mark Withers
City of Charles Sturt ___ Adam Mrotek
City of Charles Sturt ___ Henry Inat
City of Charles Sturt ___ Jamie Hosking
Dept of Premier and Cabinet ___ Tim Horton
Dept of Premier and Cabinet ___ Heath Edwards
City of Port Adelaide Enfield ___ Kristin Goonan
City of Port Adelaide Enfield ___ Rosa Gagetti
City of Port Adelaide Enfield ___ Brett Hill
City of Salisbury ___ Nichola Kapitz
City of Onkaparinga ___ Andrew Smith
City of Onkaparinga ___ Clint Watchman
City of Marion ___ Amy Liddicoat
City of Marion ___ Brett Grimm
Dept of Planning and Local Govt (DPLG) ___ Matt Lang
Urban Renewal Authority (formally LMC) ___ Kirsten Potoczky
Office for Recreation and Sport ___ Phil Freeman
Dept of Families and Community (DFC) ___ Geoff Claridge
City of Adelaide ___ Marty Reeve

The consultant team members for the project were as follows:

Suter Planners (Lead Consultant)

*Suzanne Suter
Emily Moskwa*

WAX Design

*Warwick Keates
Mark Jackson
Corey Brown
Matt Baida
Amanda Balmer*

URS

*Brenton Burman
Paul Vivian*

This project has been assisted by the Local Government Research & Development Scheme.



Contents

Case Studies Overview	01
Vauban, Freiburg, Germany	03
Rouse Hill, Sydney	05
Tübingen-Südstadt Germany	07
Lime Tree Square, Somerset	09
Victoria Park, Zetland, Sydney	11
St Francis Square, San Francisco, USA	13
Charlotte Garden, Copenhagen, Denmark	15
Christie Walk, Adelaide	17
Deep Acres, Melbourne Street, Adelaide	19
References	21
Image References	22

Case Studies

The following case studies represent global examples of best practice open space delivery within the medium to high density development. The analysis that has been undertaken considers aims to assess the critical factors and common principles that are critical to the delivery and management of open space.

The selections of case studies include:

1. **Vauban, Freiburg, Germany**
2. **Rouse Hill, Sydney, NSW, Australia**
3. **Tübingen-Südstadt Germany**
4. **Lime Tree Square, Street, Somerset**
5. **Victoria Park, Zetland, Sydney**
6. **St Francis Square, San Francisco, USA**
7. **Charlotte Garden, Copenhagen, Denmark**

A number of local projects have been reviewed. These include:

- **Christies Walk, Adelaide**
- **Deep Acres, Melbourne Street, Adelaide**



Vauban, Freiburg, Germany

Widespread community involvement in the planning and development of the Vauban district has helped it to become a sustainable and flourishing neighborhood.

The site (38 hectares) will be home to more than 5000 inhabitants and 600 jobs when completed. The main goal of the project is to create a city district in a co-operative and participatory way, meeting ecological, social, economic and cultural requirements.

'Learning while Planning' principle allowing flexibility in reacting to development proposals and through extended citizen participation.

The site was divided into small plots and allocate preferred private builders and Baugruppen (co-housing groups). Although the development plan included some regulations for the design and layout of the homes, a variety of structures exists and builders have had the freedom to design and develop the homes they aspire to.

Coherence is provided through the extensive use of ecological measures and the 'car-free' and 'parking-free' concepts of living

- Students Organisation (SUSI) - 596 dormitory rooms and 45 housing units
- Phase 1 - 422 housing units of which: 233 private build (185 of the 233 in Baugruppen - co-housing groups), 36 by Genova Housing Association, 153 by development companies.
- Phase 2 - approximately 645 housing units
- Phase 3 - approximately 85 housing units
- Dwelling type: student dormitories / apartments / houses
- Site area: 38 hectares
- Volume of estimated investments in Vauban: approx 500,000,000E

Landscape Verges and set backs __ 5m

Road Widths and shared use __ 6m

Building offsets from other buildings __ 17m increasing to 50m

Enclosed Communal Courtyard typically 1,200m²

Path widths and access routes __ 3m

Key Characteristics:

- *Community involvement at the heart of redevelopment*
- *Strong focus on landscape and open space structure to provide continuity within the development*
- *Development not car orientated, creating a safer environment for children and share use open space*
- *Ecological approach has been taken to the greening of the development, including the enclosed communal courtyards*
- *Renewable energy sources incorporated on a large scale through solar roof panels*





Rouse Hill, Sydney, Australia

The New Rouse Hill development is located in the north west area of Sydney within the Baulkham Hills Shire Council. When completed, the development will include a cosmopolitan town centre, up to 1,800 modern homes, over 34 hectares of parks and open space and extensive community facilities. Regeneration of the banks of tranquil Caddies Creek have inspired the landscaping of The New Rouse Hill with species native to the local Cumberland Plain landscape.

Rouse Hill Town Centre balances a pedestrian friendly and environmentally sustainable town centre that respects the heritage, cultural and landscape features of the local community. Rouse Hill Town Centre has a strong connection to its residential neighbourhoods, primary and secondary schools and natural environment.

The New Rouse Hill has developed building design guidelines for proposed residential dwellings which mandates environmentally sustainable design features and specifies requirements for use of materials that have low embodied energy, recyclable or have recycled content and contain low Volatile Organic Compounds (VOC's).

In towns and cities, public space has traditionally served as a meeting place, marketplace and traffic way. Enjoyable towns and cities find a comfortable balance between these three demands, without forfeiting their links with the natural world. The starting point for the design of Rouse Hill Town Centre was a desire to achieve this balance, responding at the same time to the climatic environment of Rouse Hill, and the principles of ecologically sustainable design.

Rouse Hill Town Centre, sits at the heart of the 120-hectare New Rouse Hill site in northwest Sydney, which has been identified by the state government as a major corridor for Sydney's expansion, and will account for 20 per cent of the city's population growth. The New Rouse Hill is a joint venture project between GPT and Lend Lease, and was developed within the context of a masterplan prepared by Civitas Urban Design and Planning in partnership with the NSW Department of Planning and Landcom.

The GPT Group is the developer, owner and manager of the \$470 million Rouse Hill Town Centre, which has all the facilities of a small town, including a shopping-centre precinct, commercial space, a nine-screen cinema complex, education, library and community facilities, a health and medical centre, and good transport links. The design of Rouse Hill Town Centre was delivered by a consortium of three architectural firms – Rice Daubney, Allen Jack+Cottier and Group GSA.

Verges: 12m

Internal Courtyard__ 18x23m=594m²

Building Offsets from other buildings__ 16m

Other Courtyards__ 30x30m=900²

Enclosed Communal Courtyard__ 60x20m=1,200m²

Path widths__ 3m

Key Characteristics:

- *Use of sustainable materials in the construction of the development*
- *Design focused on creating livable spaces, such as the orientation housing to gain natural light and heat*
- *Utilisation of natural landscape features as accessible resources for leisure and relaxation*
- *Generous provision of open space in close proximity to the new built form and connectivity to the wider open space*
- *Use of quality materials and commercial areas matching the rich material choice in the built form*
- *Public open space designed and vibrant, desirable places to occupy*



Valleygirl

TOYOTA

NSW
AWK-61L

Tübingen-Südstadt Germany

The Südstadt consists of two neighbourhoods, the Loretto (6.3ha) and the Französisches Viertel (French Quarter, 9.8ha). In between them runs the Stuttgarter Strasse, a regionally important and busy road. Both areas are located on the sites of former French military barracks.

Loretto is arranged around the former parade-ground which has been transformed into a long, linear public square. The Französisches Viertel has a more homogeneous, multidirectional urban grid. Its main public space is a refurbished tank shed which has been made accessible for ball games and community festivals.

The prevailing typologies in both developments are urban blocks. New build complements the military barracks, most of which have been retained and converted into flats. They are partly outside and partly integrated into the blocks.

The use of building partnership entails plot-based development. As these groups can only handle a limited building volume each block is made up of a number of individual buildings. Their fronts align with the perimeter of the block which has been defined by the master plan. However, height, depth and architectural style of each building are allowed to vary within a given range. Thus an architectural diversity is created which reminds of urban quarters that organically "grew" over time, not dissimilar to Urban Villages in the UK, but in a modern architectural language.

In German planning the GRZ (Grundflächenzahl) is a key measure of density which indicates the percentage of plot that can be covered by the footprint of the building or by sealed surfaces. Densities are set at a GRZ of 0.6-0.8 (60%-80%), which is relatively high. In combination with building heights of generally 4-6 stories it is equivalent to the average inner-urban area of a mid-size German town.

The master plan deliberately avoided the application of zoning laws, instead requiring each partnership to find a non-residential use for their ground floor space, such as an office, a community or a retail use. The result are active frontages and a particularly fine mix of uses which both contribute to the quarter's urban character.

A strong emphasis has been placed on the public realm. Buildings have their entrances to the street, which is thus defined as the main public space. The courtyards within the blocks are shared between the residents of each block and can be regarded as semi-private. They are accessible to the public from the street, yet signs politely ask the visitors to respect everybody's privacy.

Private car parking is highly restricted in the entire quarter and limited to three multi-storey automated car racks which are located so that they are never further than 250m from any flat. Apart from one underground garage there is no additional private parking. (Interestingly this garage belongs to the only building that has been commercially developed by a private company.) The absence of on-street parking results in narrow streets. It allows for higher densities and further adds to the development's urban character.

All dwellings are flats, and they are almost exclusively owner-occupied. This reflects the municipality's intention to create a quarter which is attractive to a typical suburban clientele, i.e. middle-income families aiming for home ownership.

There is no separate provision of affordable housing. Instead plot sizes are kept flexible so that a low-income group can build to high densities on a narrow plot and thus spread the cost of the land across many parties. Self-commissioning further allows for an individual choice of materials and finishes as well as for the contribution of manual labour, means by which costs can be cut even further.

Distance between housing__ 15-18m
Front Yards and set backs__ 5m
Road widths__ 5m
Courtyards__ 65x15m=825m², 30x30m=900m²
Shared Zones__ 13.5m width
Multiuse Space__ 75x35m=2,625m²

Key Characteristics:

- Diversity in built form and activation of façades with shop fronts, cafes, verandas and green infrastructure
- Mixed use pedestrian/vehicle spaces create a safer environment, with road parking removed and multistory 'racks' utilized for bike parking
- Generous spacing between buildings allow the creation of communal courtyard spaces



Lime Tree Square, Somerset

Lime Tree Square offers 138 homes with close links to the town centre. There are 30 homes for social rent. The entrance to the site from the south leads into a welcoming space described as the "Arrivals Square", from where the principal spine route leads through the site to the north. Carefully landscaped and planted with lime trees, the square is defined by apartments on the south and east sides and terraced houses on the north and west sides.

Taking a fresh approach to the streets and public realm was essential to creating a high quality neighbourhood. The original brief identified a somewhat contorted route through the site, keeping lengths of straight road to a minimum to prevent rat running.

The design of defined spaces and the use of planting, street furniture and trees all strengthened the sense of place, and the highway authority took this approach on board.

The central square in Lime Tree Square is a place for meeting, playing, sitting and picnicking, creating an important social space. All the public spaces are overlooked by housing, which means that children can play outside more safely.

Shared space and home zone principles underpin the scheme's broader design philosophy, with pedestrians given priority over cars. There is plenty of car parking on the street, in garages and car ports, and on the central spine route through the site.

Rather than taking the traditional approach to highway approval, the highway authority joined the development team for a series of monthly workshops so that all aspects of highway design could be worked through properly. The network of street types which had been put forward by the design team, for instance, was tested in detail. Its grid pattern, with a strong frontage of terraced units proposed a tight street framework, so they looked at street use by pedestrians and cyclists, and tracked vehicles. Areas of concern such as visibility were resolved through the design development process or by identifying mitigation measures should they be needed.

The scheme relied on a strong landscaping strategy to reinforce the concept of shared space. Traditionally the highway authority would have included strategic planting as part of the highway adoption with a commuted sum. However, the success of the development depended on streets being maintained to a higher standard, and so it was agreed that a management company supported by Clarks would take on the responsibility under licence for the maintenance of planting and street furniture.

As a result of this closely coordinated approach, pedestrians and cyclists are accommodated throughout the site with cars adapting to this priority. Routes are also provided through and across the site with connections to existing cycle routes.

A large proportion of Lime Tree Square is public open space. These include green space along the main road, the main square, semi-private spaces like the green streets, and private exterior spaces like the upper-level decks in the terraced and mews housing. All apartments have private balconies with views to the green or the square.

The apartments and houses have simple forms and use a mixture of natural and modern materials set in high quality landscaping. Housing blocks are well laid out, with robust detailing and use of materials. The external finish of Lime Tree Square ranges from gabion walls using locally sourced stones, to local brick and rendered walls, and timber screening the elevated deck areas.

Path Widths__ 2m

Road Widths and home zones__ 5m

Building Offsets from other buildings__ 8-12m

Arrivals Courtyard__ 50x20m=1,000m²

Park Dimensions__ 60x30m=1,800m²

Open space provision (public and shared use: 60%

Link widths between buildings__ 9m

Key Characteristics:

- Integrated approach to landscape, buildings and roads
- Priority given to pedestrians and cyclists
- Creation of community spaces
- Robust detailing and use of materials
- Strong emphasis on the design principles of shared space
- High level of maintenance



Victoria Park, Zetland, Sydney

Victoria park is a 24 hectare mixed-use development site-owned and managed by Landcom.

The GAO and Hassell Architects together undertook the master planning, design documentation and construction of the public domain. This included the design of Woolwash and Joynton Park.

The outcome represents an environmental first for an Australian urban redevelopment, achieving the development and implementation of water sensitive urban design principles.

Victoria Park will have up to 2,500 dwellings and a mixed use development consisting of;

- 150,000sqm of residential uses
- 25,000 sqm of commercial uses
- 10,000sqm of retail uses
- 8,000sqm of commercial community uses

Path Widths__ 3m

Road Widths__ 5m

Central Road verges__ 4m

Rear yards__ 7x4m=28m²

Courtyard__ 45x25m=1125m² 40x20m=800m²

Park Dimensions__ 7,700m²

Key Characteristics:

- Wide range of open spaces demonstrating diversity in design
- Seamless integration of water sensitive design
- Open space serving shared use and public use
- Plentiful provision of street tree planting to soften the building density
- Close proximity of expansive park squares to high density dwellings

Pictures from:

<http://www.batessmart.com.au/projects/residential/welive-zetland>

<http://www.architecturemedia.com/aa/aaissue.php?article=12&issueid=200401&typeon=2>

<http://www.sydney.cma.nsw.gov.au/bbccj/WaterSensDesign.html>

(access on the 14 April 2011)



St. Francis Square, San Francisco

St. Francis Square is a 299-unit middle-income co-op in the Western Addition district of San Francisco, completed in 1964. It was the first of many similar medium-density, garden apartment schemes built during the era of urban renewal in the 1960s to '70s.

The site is 3.3 hectares with a density of 90 units per hectare.

The designers created a pedestrian-oriented site plan with parking on the periphery of the three-block site and the three-story apartment buildings facing inwards onto three thoughtfully landscaped courtyards. The three courtyards, each serving 100 households, became the shared outdoor space of the development and were critical to the strong sense of community that quickly developed at St. Francis Square and has been characteristic of the development ever since.

The shared outdoor space, which is owned and maintained by the co-op, is critical to the community in a number of ways. It provides a green, quiet outlook with trees screening the view of nearby apartments, thereby reducing perceived density. It provides an attractive, safe landscape for children's play, with grassy slopes, pathways and play equipment—all within sight and calling distance of home.

The shared outdoor space at St. Francis Square is highly valued and well-used by residents because: (1) narrow entries between buildings clearly mark the passage from the public space of street and sidewalk into the shared space of landscaped courtyards; (2) the size of the courtyards (45 x 45m) and the height-to-width ratio (c. 1:6), are such that they are human-scaled; (3) the courtyards are bounded by the units they serve and almost all units have views into the outdoor space (facilitating child supervision); (4) considerable attention and budget was focused onto the landscape elements of this shared space such that it is highly usable and attractive for adults and children, and has stood the test of time; (5) there is a clear distinction in the form of fenced patios, and/or "Keep off" landscaping between the private spaces of apartments and their outdoor space and the shared space of the courtyards; (6) there is easy access from apartments and patios into the courtyards.

Path Widths__ 1.8m

Road Widths__ 7m

Building Offsets from other buildings__ 8-17m

Courtyards__ 45x45m=2,025m²

Park Dimensions__ 270x85m=23,375m²

Key Characteristics:

- *Clear indication between public and shared spaces*
- *Generous sized courtyards designed at a human scale*
- *Orientation of the built form to encompass open space views*
- *Well design, durable public open spaces with ease of access*



Charlotte Garden, Copenhagen, Denmark

Charlotte Garden is used more and more by local people. On the way to the café, as a meeting place, chatting at the playground – or because they live in the housing blocks of the same name that surround the open park and courtyard. The garden has become a place and a room.

The experience of the garden takes place through movement or simply being there. In addition it is experienced as an enriched visual extension of living space: When viewed from the apartments the interplay of colour and billowing form stands out as a friendly and constantly changing pattern.

The planting consists mainly of different grasses such as meadow grass. Unusual for Scandinavian latitudes there is colour all year round. Colours change from blue and green in the summer to golden tones in the winter. The different and changing spaces are held together by paths crossing through the garden, whilst the delineation of the spaces is achieved by means of change of material. It is also a textural and sensory space with a particular attention to nuances and movement.

Path Widths__ 4m

Open Space__ 8,865m²

Built form__ 7,255m²

Distance between buildings__ 35/55m width, 140m length

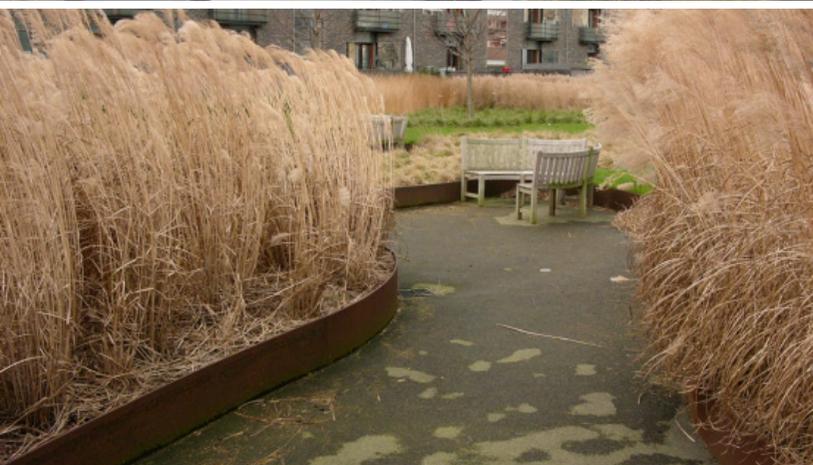
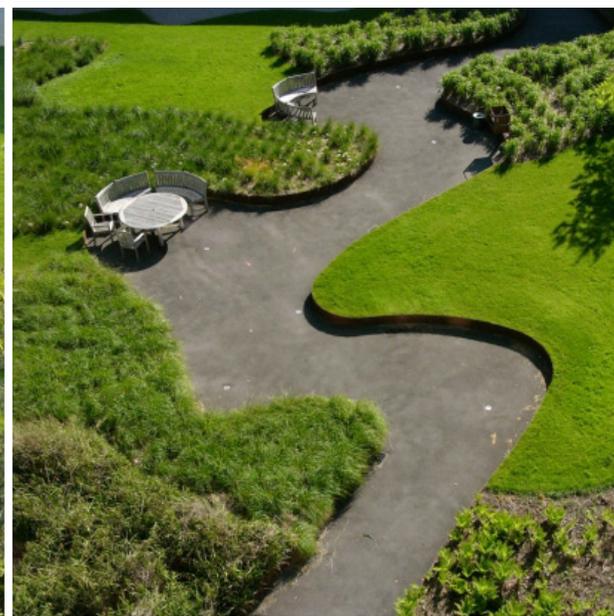
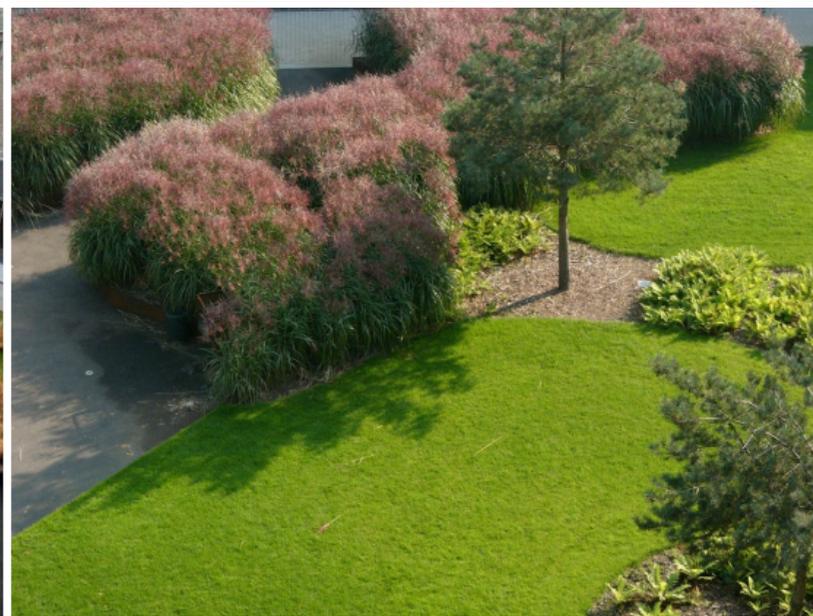
Yards__ 6x14m=84m²

Courtyard__ 8,265m²

Alley widths__ 12m

Key Characteristics:

- Year round interest created through the implementation of simple yet effective planting plan
- Contemporary design of continual visual intrigue when viewed from different levels
- Shared use space also facilitates functional aspects such as bike sheds
- Integration of play opportunities through the provision of a playground and the creation of commercial opportunities through the cafe



Christies Walk, Adelaide, South Australia

Christie Walk is an unique housing precinct within walking distance of Adelaide's city centre. Not only is the project unusual in that it employs non-traditional building techniques and materials and generates green power, it places a strong emphasis on social sustainability and housing affordability.

Designed and driven by passionate architect, Paul Downton, this development is based on his ecopolis vision. Downton is passionate about the integration of ecologically designed cities, buildings and landscapes. Back in the early 1990s he had a grand vision for the Adelaide site. His concept was inspiring and revealed permaculture influences, an Australian innovation. It also shares similarities with American Shaker villages, where there was a belief in community, material re-use and simple design which focused on the twin roles of function and aesthetics. Downton recognises that increasingly humanity will need to be accommodated in cities, therefore these places need to reconcile ecological restoration with commerce.

Fast forward a decade or so and Christie's Walk was realised. It is a good example of retrofitting an inner city site, with proximity to the city centre encourages residents to walk rather than drive.

Path Widths __ 1.2m

Open Space __ 752m²

Built form __ 2620m²

Key Characteristics:

- Integrated approach to landscape, building and roads
- Priority given to pedestrians and cyclists
- Creation of community spaces
- Robust detailing and use of materials
- Strong emphasis on the design principles of shared space
- Strong links to large open space
- High level of maintenance





Deep Acres, North Adelaide, South Australia

Mrs Jennifer Jolly engaged Claridge, Hassell and McConnell in 1939 to design apartments for a site in Melbourne St, North Adelaide, initially to accommodate visiting academics at the University of Adelaide. Jack McConnell was design architect.

Deep Acres was built in 1942 and represents one of the earliest Modern Movement style buildings in South Australia.

The building demonstrates many of the hallmarks of the style including the absence of ornamentation, use of modern materials, streamlined detailing, projecting sun porches, porthole windows and the incorporation of a flat roof - considered bold at the time. McConnell also designed most of the furniture for each apartment to ensure an efficient use of space – important to the Modern Movement ethos. Innovations included fold away ironing boards, wood chutes for fireplaces and storage spaces integrated into rooms.

Deep Acres Apartments, 1942, illustrates architect Jack McConnell's belief in the architectural values of the Modern Movement. The design solution expressed the technology of the day, the architectural form provided the ornament and the efficient use of space expressed modern living ideals, in a well detailed and crafted building.

Architect, Jack McConnell is considered one of the leading advocates of Modern Movement - and later International Style - architecture in South Australia.

Deep Acres Apartments stands as one of his early exemplar works of the period.

Path Widths__ 1.5m
Open Space__ 790m²
Open Space Provision__ 52%
Built form__ 2,620m²





References

Vauban, Freiburg, Germany

- <http://www.vauban.de/info/abstract.html>
- <http://www.madisonfreiburg.org/green/vauban.htm>
- <http://www.werkstatt-stadt.de/en/projects/22/>

Rouse Hill, Sydney, Australia

- <http://www.rhtc.com.au/>
- http://www.australianexplorer.com/rouse_hill.htm

Tübingen-Südstadt Germany

- <http://www.eltis.org/studies/tubingen.pdf>

Lime Tree Square, Somerset

- <http://webarchive.nationalarchives.gov.uk/20110118095356/http://www.cabe.org.uk/case-studies/lime-tree-square>
- <http://webarchive.nationalarchives.gov.uk/20110107165544/http://www.buildingforlife.org/case-studies/lime-tree-square/introduction>

Victoria Park, Zetland, Sydney

- <http://www.landcom.nsw.gov.au/for-home-buyers/victoriapark-zetland.aspx>
- <http://www.zetland.com.au/>
- <http://www.sydney.cma.nsw.gov.au/bbccj/WaterSensDesign.html> (access on the 14 April 2011)

St. Francis Square, San Francisco

- <http://www.communitygreens.org/stfrancissquare>

Charlotte Garden, Copenhagen, Denmark

- <http://en.urbarama.com/project/the-charlotte-garden>
- <http://www.architonic.com/aisht/charlotte-garden-sla/5100080>
- <http://plantingdesignlab.blogspot.com/2011/07/charlotte-garden.html>

Deep Acres Apartments, North Adelaide

- <http://www.architecture.com.au/emailnews/national/Heritage/SA-Deep-Acres-6-April-2010-Updated-A4-Citation-Template-FINA.pdf>

Image References

Vauban, Freiburg, Germany

images taken by Andrew Glaser 2009 (sourced 12th of September 2011) internet source URL: <http://www.ellenmacarthurfoundation.org/explore-more/initiatives-around-the-world/vauban-a-pioneering-sustainable-community-in-germany>

Rouse Hill, Sydney, Australia

Picture of town centre courtesy of <http://www.architectsajc.com/projects/rouse-hill-town-centre/> sourced 19/10/11

Tübingen-Südstadt Germany

Aerial picture taken by Eddi_S (2009) <http://static.panoramio.com/photos/original/19403973.jpg> sourced 19/10/11

Lime Tree Square, Somerset

All images sourced : <http://webarchive.nationalarchives.gov.uk/20110118095356/http://www.cabe.org.uk/case-studies/lime-tree-square?photos=true&viewing=7742> Sourced 19/10/11

Victoria Park, Zetland, Sydney

All images sourced : <http://www.itstrenchless.com.au/wp-content/gallery/zetland/vic-park.jpg> Sourced 19/10/11

St. Francis Square, San Francisco

Picture taken by Chris Carlsson (2010) http://foundsf.org/index.php?title=The_ILWU_and_Western_Addition_Redevelopment_A-2 sourced 20/10/11

Charlotte Garden, Copenhagen, Denmark

Images sourced from SLA : <http://www.architonic.com/aisht/charlotte-garden-sla/5100080> sourced 20/10/11

Christie Walk, Adelaide

All images taken and supplied by Corey Brown as taken on 13/08/11

Deep acres, North Adelaide

All images taken and supplied by Corey Brown as taken on 13/08/11