

## Settlement

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**Abstract:** In the early 1970s Michael Payne had a national reputation from housing design experience in Hong Kong and the Osaka Expo 70 project. Payne's previous work and Quaker background led to appointment as architect for a new Quaker community in Whanganui. His design for an intentional community of friends was informed by international experience in housing design and travel, including to foundational Danish co-housing communities soon after they were established. The Quaker Settlement was built over twenty five years and now consists of 17 houses around a number of unique common facilities. They are consistent in design, yet individual. They are an early example of New Zealand low energy, solar, and environmentally sustainable design. Importantly they have been socially sustainable in operation for over 40 years. The Quaker Settlement is an important built exemplar of Payne's vision and legacy that remains highly relevant today. Cohousing is once again a focus in New Zealand, however groups and architects are struggling to realise projects, or articulate the integrated architectural and social means necessary to create them. This paper revisits the project to determine contexts of its production, to document key characteristics for future reference, and to distil its enduring relevance.

**Keywords:** Context; Landscape; Urban design; Heritage.

### 1. Introduction

In March 1974 Michael Payne was at the height of his architectural career. He was known for international work in Hong Kong; the enormous Kwun Loong Lau Kennedy Town housing project, and for the Geysers Room restaurant interior and furnishing at Expo 70 Osaka Japan. An article featuring his work and sole practice based in Whanganui New Zealand had just been published in the NZIA Journal. His reputation as a leading New Zealand architect was established, although his *modus operandi* was less well known. He had a very hands-on, primarily design and build practice favouring modern, site sensitive architecture based on a tectonic, modular, and people centred approach.

### 2. Michael Payne. Early Career and Architecture

Payne began his practice in 1956 while mid-way through his studies, designing and building a retirement house for his parents Godfrey and Mary Payne, Great North Road, Whanganui. The house was an efficient, modular, split-level, technically innovative, and uncompromisingly modern house with international

influences; Mies Van der Rohe, Harry Seidler and the houses of Richard Neutra. The house siting carefully integrated an existing drive and the rolling contours of the site. The simply planned design was formally split by an entry between two vertically clad timber pavilions; a mid-level living pavilion, and an upper two level bedroom wing raised over a blockwork garage. It was technically adventurous, with a completely flat 50mm paper-faced compressed straw roof finished with fiberglass and resin, frameless glass sliding door panels directly on ball-bearings in a narrow brass track, and with an early provincial use of concrete blockwork and concrete floor slabs for housing. A simple clean aesthetic was achieved with carefully considered details. These included the super thin completely flat roof plane supported on hardwood beams at 1200 centres, full height glass windows at times glazed directly into the vertical weatherboards, simple shiplap weatherboards both outside and inside as the interior linings, and with built in cabinetry cantilevered off the walls. With help from fellow students Rod Smith and Graham Ecroyd, and subtrade contractors he constructed the house as main contractor over the summer of 1957 and in his University holidays. The house was for its time breath-taking and influential, attracting significant public interest and several new commissions.

The Godfrey and Mary Payne house was on the front of a deep peri-urban family farmlet site. The subdivision and associated landscaping as Turere Place was also designed by Payne with specialist advice from Gerhard Rosenberg. It is notable for its low impact minimal approach to landworks and infrastructure, for the introduction of common space and facilities, the retention of major existing trees, and stormwater management though integrated retention areas. This was at a time when low impact subdivision was uncommon. Key details include a street design following lower contours in an inverted hook shape, the extent of green park areas both at the subdivision entry and within its core, a common tennis court, and the single footpath and kerb road design shedding water to local stormwater retention and dispersal. Turere Place is recognised for its subdivision design, and the modern houses within the precinct as discussed in Gatley (2008).

Michael Payne was actively involved in the construction of both of these early projects as a design-builder in the manner of Group Architects in Auckland. He called his practice Modular Constructions and despite cautions from peers that he would be unable to register as an architect, he formed a partnership with a director of a low cost housing company. Craigwin Payne Ltd aimed to design better quality, forward thinking, low cost housing alongside the standard housing Craigwin were known for. Unlike Group Architects, Payne's design focus was international and modern. The partnership continued for several years until not long after the end of Payne's studies in architecture. They built 20 or more bespoke, low cost, experimental, modular homes, many using lightweight pumice concrete prefabricated walls. They eventually found that affordable bespoke Modern housing was not a profitable business.

In 1959, as a new graduate, the first stage of the Michael and Marilyn Payne house at 24 Turere Place was designed and built on a difficult south facing hill that was a defining part of the subdivision design. Payne was determined this would not be flattened by earthworks. A large open planned south facing studio was heeled completely into the existing slope and following the hill contour with a boomerang geometry creating a south facing entry and vehicle court. The studio space was anchored with a substantial river stone fireplace that divided the main studio space in two. A huge horizontal glass skylight between steel beams facing north brought sunshine and solar warmth into the volume, and a second skylight lit the small bathroom. Like his other projects it used concrete floor slabs with blockwork retaining and end walls, this time with a 100mm insitu concrete first floor slab roof supported on steel beams and posts.

### 3. International Experience

When it was clear the Craigwin alliance would not endure, Payne looked at options for the future including employment in Hong Kong where his sister was living. He was appointed as a maintenance surveyor for the Hong Kong Housing Society mid-1961, and in time this offered the opportunity to design, document and project manage the Kwun Loong Lau Kennedy Town housing project. The building was 2050 apartments that housed around 15 000 people in a major interlinked series of high-rise buildings.

The HKHS work and the Kwun Loong Lau Kennedy Town architecture were important hands-on experience of high density housing, its long-term management, and its social implications. Like the earlier single house projects, the project design worked sensitively with the existing site qualities, and minimised infrastructure and site disturbance on a seriously tricky site. The long building snaked along the site contours with shorter wings added across the steep contours at right angles uphill. It was technically innovative, addressing many of the problematic characteristics Payne had noted in other HKHS buildings he was managing. Improvements included the introduction of PVC drainage systems, accessible centralised services below the buildings along the contours, and centralised lifts and services based on studies of peak demands and use. There were also major innovations related to the social operation of the buildings; the way people moved into and within the buildings, and the opportunities the buildings provided for social connection.

“I looked at how people lived at these astonishingly high densities: what they did in their spare time, and where they related to their neighbours” Payne (2008).

The resulting design was aesthetically simple, clearly structured and influenced by an international modern context including Le Corbusiers Unite de habitation in Marseilles as Payne noted (2017). This influence may be read in the expressed ‘beton brute’ concrete work, internal streets, and the community facilities on the roof. The detail composition of each block was enlivened by use of subtly different coloured stone panels and brightly coloured accent doors to different building sections, ventilation louvres, exposed drainage and deep balcony setbacks. Carefully detailed easy stairs with generous landings, and large centralised double floor height lift lobbies were intended to create opportunities for gathering, resting, conversation, and recreation. These spaces for social exchange extended to community facilities on the roof areas, including ball courts, a community centre, kindergarten, and children’s playground. The roof terraces had carefully detailed perimeters with an expressive concrete canopy for shade and seating for passive recreation and to terminate the verticality of the facades. Payne (2008).

The Expo70 Geyser Room restaurant project Osaka Japan was commissioned in early 1969, not too long after the Payne family returned to New Zealand. Payne’s direct Hong Kong and Japanese experience, and the strength of his vision for the project were key. Faced with a restaurant space already defined and an idea of a model of a geyser within it, Payne proposed the project should instead become a geyser experience. This would occur through a cavern like space with an inhabited geyser at its centre, and with all interior design components in the widest possible sense as an integral part of the designed vision. He was appointed design director responsible for realising his vision, and had the design, negotiation, technical persistence, and project management skills across a range of design and disciplinary realms to achieve the vision to significant acclaim. *Designscape 12* (1970)

#### 4. Multiple Housing in New Zealand

On his return to New Zealand in April 1968 Payne spent a year redesigning and constructing the second stage of the Michael Payne House at 24 Turere place. Despite its age, the house is an exemplar of low energy, south facing passive design. Its key tactics are a north facing courtyard, north facing sun space circulation and thermal mass in the intermediate floor, a simple stepped sloping roof section and clearstory windows to bring sun deep into the house, and the large central skylight to pull sun down to the lowest level. The house showed the influence of Payne’s travel with sliding shoji screens, cedar ceilings, and a Japanese bath off the main bedroom. The house was also uncompromisingly modern. A series of small square evenly spaced south facing windows created a linear ‘railway carriage’ effect (Payne 2008). Like his earlier houses, it used vertical shiplap boarding to interior and exterior wall faces. The low scale north courtyard side of the house was so well integrated with the garden and landscaping it was described as ‘a bloody marvelous garden with a nice fence behind it’ (Payne 2008). While the landscaping reflected Marilyn’s landscape design ability, the integration of house and environment was a priority for Payne. He achieved this, like on other projects, through continuous use of a single material on the interior and exterior of a house contrasted with frameless glazing. In this case, he also added expressive timber clad wing walls, cantilevering to the south, and extending as fences to the north, and creating the impression of seamlessly connected interior and exterior space. This idea reoccurs in Payne’s architecture including within the design of the Quaker Settlement. The house was also an early New Zealand use of solar panel water heating, which together with the concrete intermediate floor heat sink radiating heat both down and upwards, and the passive solar characteristics of the house demonstrate a concern for energy economy at a time before the early 70s energy crisis.



Figure 1: Wanganui City Council Urban Renewal Proposal (source: WDC archives)

Payne's experience of housing and design in Hong Kong fundamentally changed his understanding of housing and the city. He became an advocate for urban renewal and higher density housing

"I'm much less interested now in doing individual houses. There's a lot of emotional involvement and work on them doesn't really speak to the more general problems... Multiple housing is what I'm interested in; better land use ...the problems with the cities especially as the energy crisis strikes us is that the population density is too low, with the result that good public transport and other facilities become too expensive to maintain. Payne (1974).

In 1973 he was commissioned to undertake a major urban redevelopment project in central Whanganui. The project design covered six blocks close to the city and introduced significantly higher densities through a range of higher density building typologies including townhouses, courtyard housing, terrace housing and an apartment block. It encouraged upgrading of selected existing housing through improvement grants, and integrated existing housing with selective infill housing and large new areas of housing. It also removed through traffic to "provide play and recreation areas, a quiet neighbourhood" and "sought to introduce a mix of inhabitants by introducing a variety of kinds of accommodation" Payne (1974). More contentiously it closed a major traffic route between the site and the Whanganui River. It also advocated the introduction of Community facilities, a network of accessible linked walkways and small scale open spaces, worked with existing contours without major earthworks, and maintained and extended existing mature planting.

The full Wanganui urban redevelopment project did not occur however in early 1978 the Wanganui District Council proceeded with an initial stage of the project with Payne as architect. As part of the preparation for the housing project, named Pukenuamu, Payne reconnected with Danish architect and urbanist Jan Gehl who he had met during Gehl's visit to Victoria University of Wellington School of Architecture around that time. Payne had been inspired by Gehl's studies of public places and how they operate socially, how social connections occurred, and what parts of environments social exchange occurred in and why. A one month study trip to Denmark was organised to study Danish housing communities as a preparation for the Pukenuamu project. Gehl arranged introductions to people and places key to their research, and accommodation for the Payne's in his home. The places visited included Gallenbakken, a large new housing estate for 35,000 people, and Sattledarmmen, a foundational cohousing settlement referenced by McCamant Zoom & Durrett (1994) as the original Danish precedent for the worldwide cohousing movement.

## 5. The Quaker Settlement Project History

The idea of a residential Settlement for the Society of Friends at 76 Virginia Road across from the Quaker school was first considered in 1921 when Ford and Talboys Architects produced a subdivision design and proposed elevations for common buildings on the site. The site was more or less level towards the adjacent road, and had two major sand ridges parallel to the road deeper into the site. The Ford and Talboys proposal included a common pavilion and tennis court, and three duplex common houses. The idea of a 'Community of Friends' residential settlement on the 4.7 Hectare Quaker School farm owned and managed by the national Society of Friends was revisited in 1970. Payne, was approached to produce design proposals for the site at 76 Virginia Road for a small group of Quaker clients from around New Zealand in early 1974 in the same period that the Wanganui City Council Urban Renewal project was being designed. The proposal named "Quaker Acres' was for a community of residents and central community

buildings and seminar facilities to serve both local and national Quaker interests. Negotiation of the individual house sites and their relations to the overall settlement design was subject to different ideas and much discussion. Payne argued

“If we were serious about making a community, the development would need to be compact, limiting the length of vehicular access and services” Payne (2008).

The design was deliberately compact to facilitate social connection and minimise access and infrastructure costs. Like the Turere Place subdivision, it worked from the formed site access and the site contours to minimise earthworks and infrastructure. The initial development plan produced in February 1974 shows two groups of houses each side of a series of linked community buildings. Five houses are linked as two groups of terrace houses, and three as closely located individual houses. In 1975 the Quakers national yearly meeting agreed to transfer the land for the project to the ‘Wanganui Educational Settlement Trust’ that would manage and license occupation of the land to individual owners for settlement. The initial pioneering residential client group was a small group of older Quakers.

“I still marvel at the courage of those early settlers, committing as they did, to build in an empty field without any guarantees that the whole scheme would come to anything” Payne (2008).

## 5.1 Implementation

The first move to realise the vision was the construction of a workshop and future art and craft space to operate as a temporary base for construction. The work was jointly funded by the first group of settlers, and soon after five initial houses were constructed in 1976 and 1977. Every house was an individual design for the occupant’s needs and preferences. The houses were not connected as per Payne’s original concept however they are located close to each other with a similar formal manner, and designed to an agreed common simple material palette.

“I worked out with the trust an agreement about the external appearance of the buildings so that we could get away from a whole range of personal preferences and make a “community” of buildings” Payne (2008).

The material palette was concrete floors, modular timber framed construction, charcoal concrete roof tiles, white solid plaster exterior cladding with red spouting and downpipes as an accent colour. Interiors included cork tile floors, white plasterboard walls and Monocoustic prefinished ceilings. The underlying idea for the settlement was for a community of houses surrounding the common buildings in the manner of a village. The centralized common spaces included a workshop, kitchen, dining and lounge areas, library, short stay accommodation, an office, and ablutions.

Payne was more than the architect. In the manner of his earlier house projects, he was a hands on project and construction manager, working with a single builder John Remus, and measuring quantities, organising subtrades, ordering and managing materials, and managing finances. He continued this pattern of extended service working on all the various stages of design and building with the same builder to realise all but one house over time. There were in excess of twenty successive building projects in several major phases over a period of 40 years.

## 5.2. The Danish Research

After the construction of the first five houses and before the construction of the common facilities at the settlement in 1979, Michael and Marilyn travelled to Denmark to study “how the balance between the individual and community was managed” Payne (2017). Jan Gehl’s brother in law took them to visit the new Danish architect designed co-housing project Saettedammen. The 27 house first stage of Saettedammen was realised in late 1970, McCamant *et al.*(2011) so it was in operation when Payne visited. It had struggled financially to get off the ground and so the scope of original work had been cut. Common landscaping interface intended between the central public parts of the site and the houses had not occurred so there was a very direct relationship between houses and the commons. The parking was centralised at the entry to the site. Together this created a village square effect the inhabitants enjoyed and believed helped social connections to form. They were a mixed age community with lots of families and children, and some larger mixed extended family houses with groups of adults and families living together. There were lots of community functions, and work activities like mending of bikes. The community had been through a ‘honeymoon syndrome’ where significant enthusiasm was being met by a realisation that community also came with expectations and responsibilities to others. Around half of the original residents were owners, and half rented. Low housing, rental and running costs were traded off by contributions to a pool of community labour that looked after the place. Everyone needed to happily take a share of the cleaning and many other community maintenance tasks like cooking shared meals. Payne noted that Saettedammen did not have a purpose beyond living together as an intentional community, and had been formed as a result of a groundswell of interest that was generated through newspaper articles and advertisements. Payne (2017). It had a preschool for residents and the wider community. The community had a low cost, low energy focus. Payne advised them on the technical set up for a solar panel system they were setting up. When he returned to Saettedammen twenty years later he noted that unfinished parts of the design had never been completed and observed that groups of people can find it difficult to agree to modify an existing occupied environment. Payne (2017)

## 5.3 Common Areas

Stage 1 of the Quaker Settlement common areas were detailed and constructed in 1979 after the return from Denmark. These facilities included a large dining and common room area, a library and meeting room, a working kitchen, an office and associated toilet areas. The design follows the original development concept plan for siting and planning with the exception of short stay units to the north of the library. These would later be sited east of the Quiet Room. Common carports were also constructed around this time located together to the south of the common buildings forming a service and entry courtyard. The common facilities like all of the houses face north. They are structured to create a major north facing courtyard that the kitchen, dining areas, and library face onto. A separate sleeping and ablutions block was constructed soon after in 1981, completing the major facilities. These were designed to accommodate the common life of the residential community, the wider New Zealand Quaker residential seminar purpose, and the wider needs of other local and communities of interest. The sleeping block is distinctive in design, a cross between Marae style and tramping hut shared sleeping areas, with zones of separation created within the larger space through the use of levels and screens. In time additional, more private accommodation was sought and some separate bedrooms were added, and planning changes introduced within the open accommodation to allow separation of the sleeping facilities by gender when required.

#### 5.4 Demographics

A significant housing shift occurred around this time. A settler with young children and a shared house, was introduced into the community in 1981. The trust was keen to involve younger people, families, and single parents. A large rental house with bedsitting rooms was designed to accommodate the needs of this demographic perhaps influenced by similar children's houses at Saettedarmmen. For a number of years it worked in the manner of blended families with some moving on and others moving to other housing in the settlement. In later years, this larger house was split into two separate smaller units. The larger houses were a deliberate intent to change the demographic character of the emerging settlement. The incremental housing growth continued through the early 1980's until there were around 11 houses. In 1989 the Payne's built a larger more architectural house for themselves. It utilised the agreed material palette and reflected their individuality and preferences. A glass house sunspace moderated by an internal grapevine, and a double height lounge space were a particular focus of the house. A further four houses were built over the 90's with the last new house built in 2004. It was the largest on the settlement, designed in two linked parts to enable it to be readily split into two units if required in the future, as has now occurred in 2017. After periods away from the settlement travelling, with family, and living in a Caravan in 2016, the Payne's refurbished and moved into one of the first three houses built, and at 55m<sup>2</sup>, the smallest house at the settlement.

The last communal stage of the project was the Quiet Room built at the start of 2000. The subject of much discussion as to need and design, it was intended as a place for common meetings and silence. It was controversial, as it is in Quaker terms, a non-traditional meeting space. Quaker meeting spaces are conventionally square or rectangle in shape. The Quiet Room is octagonal, with a large central circular skylight. It is a non-hierarchical contemplative space in its simplicity and evenness. The calmness of the space is partially attributable to its pure geometry, the light qualities, and its quiet acoustics. Like the other main buildings of the settlement the ceilings of the Quiet room are 38mm woodtex (cement bonded wood shavings panels) naturally finished and with high acoustic absorption. The building structure was erected as a communal effort by the wider New Zealand Quaker community over a single day, and the interior was finished by Payne and builder John Remus over the following three months.

### 6. Analysis and Contemporary Significance

Payne's overall intent for the settlement like for the Hong Kong project was "to make a place people would want to live in and would give a measure of community life" Payne (2008). As a result, attention is given within the design to potential moments where social contact might occur and how the architecture can facilitate this. These range from the building thresholds, or big issues like the compact shape and centralised form of the overall community. All are highly significant. Other examples are the common carparks and letterboxes with an associated notice board. With common tasks, job lists, and weekly meetings and community meals these create 'sociability' Payne (2017).

Separating the cars from houses was a significant architectural move. Another distinctive characteristic of the settlement pattern is the lack of formed paths between houses and the common areas, the lack of division of the land, and the lack of division of the sites that settlers occupy into smaller parcels. The subsoil is free draining sandy soil so this can occur and its implications are significant.

"Most people want their car with their house and in the typical suburban situation people drive right into their garages and no one sees them. Walking from common carparks to houses takes more time than it does to walk the distance because you encounter others on



the way” Payne (2017). It creates an aesthetic unity, a peaceful common environment that many visitors comment on. Payne (2017)

It also reflects the early influence of the Danish co-housing precedents, which were an important reference point supporting key ideas for the formation and maintenance of community, such as the grouping of cars together with the common areas.

The aesthetic unity is also significant. Common facilities and individual houses are linked with a common aesthetic expression, with common forms, colours and material palette. This is balanced by a highly individual private realm where every house and building is tailored to meet each individual’s needs. Payne noted “If you want to build a weatherboard house every other site in New Zealand is available” and that to be part of the Quaker community, “you must be prepared to accept the ground work already done by others.” This aesthetic unity was a practical means to retain a connection between separate, individual houses and community buildings designed over an extended period of time. It created a continuity between over 20 building projects constructed over 25 years.

There is a great contrast to the surrounding conventional subdivisions where there are “all kinds of expressions of wealth and superiority.” Payne 2017. The different settlements not only look different, an area analysis of the equivalent site areas for the Quaker Settlement and the adjacent subdivisions is revealing. The retirement village subdivision Kowhainui immediately to the west shows a hard surface coverage including roading, housing, driveways, and paths of 40% of the available land area. The new



Figure 2: The Quaker Settlement (central) in context. (source: <http://maps.whanganui.govt.nz/IntraMaps80/>)

subdivision Lithgow Drive to the east of the site has road, housing, driveway, and path coverage of 60% of the available land area. The Quaker settlement has a site coverage of less than 20% of the available land area, and includes significant common areas and results in a clearly superior wider built environment quality. This environmental quality calls into question the value of many subdivision rules and standards like the extensive development of paths including the doubling of footpaths each side of roads, wide road widths allowing for two directions of flow and parking on their edges, all for limited cul-de-sac traffic, and at the expense of the natural site landscape and green space.

The settlement patterns in the surrounding subdivisions are also less sustainable from an energy perspective. At the settlement every house is able to be oriented directly to the north and take advantage of passive design principles. This is efficient and resourceful. Common houses also share a large north facing solar array contributing to a substantially energy self-sufficiency. The resourcefulness of post war architecture is also still evident here as well. There is a simplicity and modesty to the architecture that reminds us that it is possible to provide comfortable affordable housing and community environment without excess.

The big issue for any intentional community is “how do you manage the balance between individual and community life?” Payne 2017. Community living places demands on individual resources and time required to fund, establish and maintain community shared facilities. This takes a degree of shared responsibility and management. Socially it’s like living in a big extended family or like having lots of uncles and aunts. McCamant and Durrett note that “Cohousing institutionalises community on a long term basis. (2011) The number of houses and people in the community is now 17 houses and around 35 people in the community in a mix of owned and rental units, and this number is also noted to be a practical maximum for self-managed socially sustainable community.

“We wouldn’t mind a higher density, but it would be difficult because of the community management of so many. It is possible with a manager, but that would introduce a hierarchy. Would they be paid? Who do ‘they’ manage? What do they manage? “If we had a Director it may have been easier, but it would have crumbled. Everyone here has a willingness to share”. Payne (2017)

In the Quaker Settlement there is an understanding that consequences of decisions in the community effect other people. This plays out as a philosophy and working method of “Distributed responsibility” Payne (2017) that equally shares leadership and management, and is regarded as the critical factor to the community’s long term social sustainability. The Quaker Settlement careful, socially considered design is an enduring exemplar with significant relevance for emerging contemporary Cohousing projects.

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