KITCHEN REMODELLING IN NEW ZEALAND – ISSUES OF SUSTAINABILITY

CHRISTINA MACKAY

School of Architecture, Victoria University of Wellington, PO Box 600, Wellington, New Zealand

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ABSTRACT

In recent decades, a large specialist kitchen remodelling industry has developed in New Zealand. In new houses and renovations, kitchen joinery is commonly constructed of plastic laminate board with a designed life-cycle of less than 10 years. This factor ensures on-going work for designers, fabricators and installers. However, the present pattern of repeated remodelling is wasteful and polluting.

The aim of this research is to understand the broad issues and dynamics of kitchen re-modelling with respect to principles of sustainable design. The study also identifies materials and design approaches which have high or low environmental impact.

The research reviews kitchen designs published in New Zealand architecture and design publications and journals. Findings are placed in an international context of design and research in the area. Changing designs are described and design trends and issues are identified. The role of fashion versus function, as a driver for remodelling is considered. Motivations underlying kitchen renewal are examined as well as the influence of the kitchen renovation industry. Findings are analysed against principles of sustainable design.

Findings question the need for full kitchens in every dwelling, and suggest greater use of communal facilities and kitchenettes for small households. Early 20th Century kitchens were simply fabricated in natural bio-degradable materials, but the later focus on efficiency and hygiene welcomed the durability of new plastics in fitted joinery units. Changing social patterns initiated renovations to form open plan living spaces. The kitchen became the 'hub of the house' and its design is now the focus for self- expression, identity and status needs. A large kitchen design industry has developed to capitalize on the desire for a 'dream kitchen'. The industry has a vested interest in promoting large elaborate kitchens as status symbols and in regular remodelling. Discussion of sustainability within the sector is almost absent.

The practice of continual kitchen re-modelling using short-life cycle, non-recyclable materials needs to be questioned. Strategies of promoting simplicity in food preparation, re-using existing heritage joinery, designing in easily personalized features or highly crafted storage furniture could lead to more flexible and sustainable kitchen design practices for future generations.

Main subject area: Understanding and improving performance of buildings – achieving sustainable outcomes.

Keywords: kitchen; remodelling; sustainable design.

INTRODUCTION

In recent decades, a large specialist kitchen remodelling industry has developed in New Zealand. In new houses and renovations, kitchen joinery is commonly constructed of plastic laminate board with a designed life-cycle of less than 10 years. This factor ensures on-going work for designers, fabricators and installers. However, the present pattern of repeated remodelling is wasteful and polluting.

The aim of this research is to understand the broad issues and dynamics of kitchen re-modelling with respect to principles of sustainable design.

Firstly, this paper considers the position of kitchen modelling with respect to a framework for environmental sustainability. Secondly, current theoretical explanations for kitchen renewal are presented. Four key drivers of kitchen re-modelling are investigated and discussed with respect to issues of sustainably; perceived improved functionality, self-expression and identity through design, changing social patterns and the pressure of advertising promoted by the kitchen industry. In conclusion, key sustainability issues are identified and possible sustainable outcomes are proposed.

SUSTAINABLE PRINCIPLES

In order to identify issues of sustainability with respect to kitchen renovation, the simple framework of the 1993 RIBA Environmental Policy provides a basis. The four key principles are to: maintain/restore biodiversity; minimize pollution of soil, air and water; minimize the consumption of resources (particularly non-renewable resources); and maximize the health, safety and comfort of building users. These principles can be applied to kitchen remodelling with the following strategies.

Supporting biodiversity may appear distant from a kitchen interior perspective, but the selection of materials from sources and processes which respect the natural environment is a fundamental prescription.

Minimizing resource consumption promotes using the minimum amount of material and energy in the preparation and eating of food. This can be achieved by several different strategies: by sharing facilities in communal living, eating out or dining on take-away food. Kitchen facilities can be small and simple. Existing kitchen components can be re-used. Alternatively, designing kitchens to last a long period of time and making components recyclable or reusable minimizes the use of resources.

Minimizing pollution can be achieved by specifying materials that do not cause pollution in their mining, manufacture or disposal. Careful selecting of energy sources and technologies can reduce emissions from fossil fuels.

Sustaining the health and well-being of human beings is a more complex issue. Maslow's hierarchy of needs (Maslow 1987) provides a framework for considering this. At a basic physiological level, the kitchen stores and cooks food. Safety needs require cleanliness and hygiene in the preparation of food, as well as firm control of cooking processes. As a setting for family meals prepared by home-maker and care-giver, kitchens are strongly linked to belongingness and love needs. Esteem needs include 'the desire for strength, achievement, adequacy, mastery and competence, confidence in the face of the world, and independence and freedom'. Furthermore, we have what we might call the desire for reputation or prestige, status, fame and glory, dominance, recognition, attention, importance, dignity and appreciation'. It is easy to understand how a pleasant, organized kitchen might facilitate feelings of self-confidence, worth and capability but Maslow warns of the danger of 'basing self-esteem on the opinions of others rather than on real capacity, competence and adequacy to the task' and the 'idealized pseudo-self'. In the 21st Century, over elaborate kitchens are recognised as a status symbol. Self-actualization, the desire for self-fulfilment, is identified as the ultimate need. Here, individual differences might be the greatest. In a kitchen, this may be expressed in the desire to be a great parent, homemaker, entertainer, cook or the creator of a new kitchen.

Motivations for kitchen renewal can be multiple also.

KITCHEN RENEWAL

The 2007 publication, *The Design of Everyday Life*, reviews research into home renovation and summarises that the dynamic of kitchen renewal can be explained by the interaction of four interrelated propositions. (Shove et al 2007).

Firstly, consumers desire new things. New, as freshly created, justifies the replacement of kitchen fittings that are worn out. New, as improved or innovative, supports change to achieve additional functionality. New, as unfamiliar or novel, explains craving for the different. Secondly, homes are recognised as key sites of identity and self expression. A style of new kitchen can be seen as a symbol of social aspiration. 'The restlessness of society at large is manifested in the micro details of kitchen and décor'. Thirdly, some sociologists argue that past kitchen alterations 'trace or record of the social, political and economic ordering of domestic life'; reflecting changing gender roles, patterns of employment and patterns of family life. The fourth dynamic is pressure of consumerism in 'wants'. These desires may be fashionable style, new equipment, as well as designs that facilitate idealized family and social interaction.

In the following sections, these four dynamics of renovation are considered with respect to the history and current state of kitchen renovation in New Zealand and in relation to principles of sustainability.

A FUNCTIONAL KITCHEN

Before reviewing patterns of functionality in the history of New Zealand kitchen design, the need for full kitchen facilities in every household unit is questioned. Along with changes in kitchen planning, the rationale for the specification of materials and equipment has altered over time. Function rather than being an absolute concept is embedded with questionable assumptions. In the 21st Century function is assumed as a given.

Is a kitchen really necessary?

The presence of kitchens is now common in western culture but in 17th Century urban London, it was not unusual for accommodation to have no cooking facilities. An early household of Samuel Pepys bought in cooked food in and simply laid out the food in the dining room (Tomalin 2002). Today, trends of eating out, take-away food, pre-prepared meals, 'meals on wheels' for the elderly all maximize the use of communal kitchen facilities and energy for cooking and minimize the need for large full kitchens at home. These options are most energy efficient in the inner city, towns or suburbs where the food outlets are within walking distance. Communal dining, especially for those living alone, also provides a welcome social venue. Traditional New Zealand 'take-away' foods consist of meat pies, fish and chips and other fried foods. These are often maligned due to their high-fat content and link with obesity. However, the concept of pre-cooked meals is a sustainable strategy to feed the populace.

Small kitchens

Small households only need minimal kitchen facilities. In 2001, in New Zealand, 23% of households accommodated one person and two persons occupied another 28% of households. Therefore, over 50% of households do not require a large full kitchen complete with full-size oven, dishwasher and ample storage. Furthermore, by 2021, one and two person households are predicted to increase by 45% and 51% respectively (Statistics NZ 2009). Traditionally, the design of preparing food in confined spaces has been perfected in caravan and boat-building, yet compact kitchenettes with small

appliances are not common. Internationally, micro-kitchens are being explored as an industrial product (Serrats 2004). In the UK, Baden-Powell observes that many people may not need a full kitchen, but developers and owners fear a kitchenette may devalue their property for resale (Baden-Powell 2005). This may be a factor in New Zealand too.

Functional Design

Early 20th Century New Zealand kitchens provided the minimum necessities; a wood or coal range for heating water and cooking (and heating the room), a sink bench, a safe cupboard for cool storage, shelving and a dresser for crockery and cutlery and probably a scrubbed kauri kitchen table. The introduction of gas, then electricity, as an instant clean energy source ushered in the first round of kitchen re-modelling, although it led to chilly kitchens.

Functionality, in the form of ergonomics and ease of cleaning, became the focus of kitchen design for the housewife in the 1930's to 1960's. The design of three work stations (preparation, cooking and sink areas) was meticulously analyzed and detailed. The relationship between the areas became known as the 'work triangle'. These concepts have been faithfully reproduced in all kitchen design guides surveyed (UoOtago 1974+1981) (Bunting 1994) (Cull 2000) (Baden-Powell 2005). However, the logic of designing to allow one person easy access to all kitchen facilities with minimum walking, stretching or crouching, is now questionable. This design rationale focuses on the task at the expense of the experience of being in a beautiful space or sharing the enjoyment of the preparation of food with others.

Functional Materials

Turn of the 20th Century kitchens were simply made of wood; the under-sink cupboard and pantry shelving. The bench-top was typically unfinished kauri, scrubbed with sand-soap to a velvet finish (Graham 1905).When it was worn, it could be replaced and the original allowed to naturally bio-degrade. In the 1940's, sink benches were replaced by permanent hygienic stainless steel (H+B 1947). 1974's and 1981's kitchen design guides welcome new plastic finishes – PVC flooring, wall-linings, Formica bench-tops and melamine panel cabinets (UoOtago) 1974+1981). Only the cost premium of these new products is regrettable. In 2009, plastic laminate and melamine board are cheap and ubiquitous.

In kitchen design books, the 'cons' of plastic laminate board are widely stated. A laminated plastic bench-top will be damaged by hot pots and cutting (UoOtago 1974+1981) (Bunting 1994) (Cull 2000). Low pressure laminate cupboard doors, if damaged, cannot be repaired (Cull 2000). However, in the UK in 2005, plastic laminate is considered 'still one of the most practical and cheapest materials for facing worktops' (Baden-Powell 2005). It is simply assumed that carcases 'are made of 15mm or 18mm thick melamine faced chipboard (MFC) with all exposed edges lipped in melamine tape' (Baden- Powell 2005). Discussion of the toxicity of the product is rare. Jane Alexander advises a natural kitchen of untreated kitchen cabinets, to avoid 'noxious gases' from MDF (Alexander 2002). Discussion of the life-cycle analysis and the problem of disposal are absent. Notably, some architects are avoiding the product. In a beach-house kitchen, Herriot Melhuish Architects specified plywood for cabinetry and drawers (Clifford 2009). For strength and resistance to water damage, an American home renovation expert advises the same (Clark 2003). The inevitability of future renovation, due to failure of a melamine panel that cannot be repaired, and the disposal of cabinetry to land-fill is not considered in any kitchen renovation literature reviewed.

In the 21st Century published kitchen designs, materials are likely to be selected as the 'newest, sleekest or coolest' rather than on functional or sustainability criteria (Urbis 2004). Design aesthetics tend to be a materialization of self expression, identity, style and status.

IDENTITY + SELF EXPRESSION

French sociologist, Bourdieu, considered that tastes are principally ordered according to material constraints (Bourdieu 1984). People with few economic resources consider function and practicality important attributes, while those with less material constraints embrace style as form of self-expression. A British research study confirmed that families in a low socio-economic suburb rarely discussed the kitchen beyond its practical features (Southerton 2001). In a neighbouring high socio-economic suburb, issues of function were taken for granted and the style of kitchen, as a form of self-expression, was considered most important.

Self expression through design

This pattern parallels changing values in New Zealand kitchen design. Kitchen Planning (UoO 1974) only discusses functional considerations. Style and decoration are not mentioned. Two decades later, when architect Don Bunting wrote the 'first truly New Zealand book on renovating houses' (Bunting 1994), he considered that 'renovations should say as much about ourselves and our own lifestyle as they do about the house itself'. Irrespective of the age of the original house, the featured kitchen renovations displayed a range of styles including the fashion of the moment; 'striking' colours, patterned plastic laminates and ample stainless steel. Notably, the kitchens designed by women are styled with reference to the character of house and appear more timeless 15 years later. In 2000, Dave Cull, also promoted a similar idea. 'We all want our little bit of domestic individuality. New Zealanders love to express themselves in their homes' (Cull 2000). His guide book promotes the kitchen renovation as the vehicle of self-expression; an approach very different from the practical attitude displayed in the mid 20th Century. The practice of viewing kitchens as a 'stage-set' is common in USA. A 1997 kitchen design and re-modelling guide advises on five alternative styles: the colonial, the replica, the pioneer, the contemporary and the family style (Powers 1997). The style of the kitchen is considered completely unrelated to the age or style of the home. The 21st Century kitchen appears to have become bound up with the pursuit of happiness. The ideal of a 'dream' kitchen is a common aspiration. Susan Bream opens her 2005 publication 'designing and building a beautiful kitchen is a dream come true; a once-in-a-lifetime opportunity to carefully craft the most important room in the home' (Bream 2005). The book presents very large, elaborate, and expensive kitchens mainly with traditionally referenced style. Australian research (Woodward 2003) confirmed that 'consumer dreams, longing and desires are striking elements in the discourse of those motivated by a decorative aesthetic'. This group of home-owners love and desire aesthetically pleasing objects and spaces, browse design magazines, and exhibit a restless desire of beauty that is perceived to enhance one's life. However, Woodward identified a second group of homeowners, with equal material and culture resources, who shun fashion and desire to live comfortably in a relaxed, homely and practical environment. They appreciate the character in older homes over 'colder, less inviting modern renovations'. It appears that this group consciously distance themselves from overt materialism and acquisitiveness. It is ironical that after generations of kitchen re-modelling to suit current fashion and/or the owners' self expression or hedonism, houses can be devoid of their authentic character that could have provided a real sense of home. Philosopher, Alain de Botton suggests that 'the remove of a few generations or more allows us to regard objects or buildings without the biases which entrammels almost every era' (de Botton 2006).

Self expression through DIY

It is not surprising that DIY (do-it-yourself) kitchen renovation is a popular pursuit. Home and lifestyle magazines are awash with precedents. With the aid of popular books, internet resources and handy-person tools, the scale of the project is achievable for house owners. Personal fulfilment is gained by designing and building an environment to reflect lifestyle and values.

Moving on

An issue of expressing oneself, either by design and making, in building fabric is that many homeowners will move house and leave their creations behind. Over-personalized space is less likely to be a good fit for new owners thereby enticing another round of kitchen re-modelling. Elements of a fitted kitchen can be changed with relative ease and little expense. For instance, cupboard doors and drawer fronts can be painted or conceived as temporal; an easily recyclable site for individual self expression. In Europe, it is common for kitchen cabinetry to move too. The tradition of long term residential tenancies, has led to kitchen cabinets being considered as chattels, provided and owned by the tenant. This arrangement suggests that rather than be integral with the house, the kitchen fittings are chosen by the owners as part of their personal life-time collection of furniture. This is an effective longer term solution. Alternatively, should a new owner object to the personalized style of the kitchen, it is possible to recycle a whole kitchen setting. In New York enterprising recyclers have set up a business, Green Demolitions, to trade fittings and appliances (Haughley 2008).

While homeowners use the style of kitchen to reflect themselves, trends in kitchen planning within the home can be traced to changes in social patterns.

SOCIAL PATTERNS

Social Patterns reflected in kitchen design

From late 19th Century to the present, sustaining social well-being throughout changes in lifestyle patterns has driven kitchen design in new houses and renovations.

In an Edwardian villa, the kitchen was typically at the back of the house, out of view to visitors. It was often a lean-to finished in basic match-lining. This simple rustic environment was the realm of the servant(s) and the private realm of the house-wife. The dining room was separate, ideally at least two doors away (Jones 1912). By the 1920's, due to the shortage of servants, the house-wife was required to be both house-keeper and cook. New homes followed the North American trend of designing kitchens to be labour-saving, easily cleaned, bright and cheerful and a pride of any housewife (Massey 1924). During the 1930's, kitchens gradually 'decreased in size and increased in status'. For convenient casual family meals, the breakfast nook was added (Lloyd-Jenkins 2004). In the late 1940's post-war material restrictions and promotion of the exclusive role of the housewife ensured that kitchens were small and efficient. In 1947, Home and Building magazines present a full-range of planning options: separate kitchen, dining and living rooms; separate dining room and living room plus dinette in kitchen; separate kitchen with dining in the living room; dining in the kitchen with a separate living room. In 1947, architect A. Rigby presented an open plan kitchen-dining-living plan that would be common in houses into the 21st Century (H+B 1949). Open-plan supported the changing role of women within the family and society.

In 1962, the Home Science Department, University of Otago published a University Extension Bulletin on kitchen planning. Later editions in 1967, 1974 and 1981 track the changing social

environment. The 1974 bulletin opens 'Today's kitchen must take the place of yesterday's servant, giving efficient aid to the housewife as she prepares food for family and friends'. By 1981, 'good kitchen design is equally important to the career person and the full-time home maker, the able-bodied and the physically disabled'. It became common for women to work outside the home and for men and children to cook.

In New Zealand Houses Today (1988) the open-plan arrangement remained popular, but with a breakfast bar separating the kitchen; often in galley style. Larger houses had separate dining and lounges as well. Bunting comments 'the more informal lifestyle of the 1990's means that the cook need no longer be isolated from the social activities of the rest of the household. The kitchen/family room has now become the hub of the house; a place where the family gathers to cook, eat, talk and relax' (Bunting 1994).

At the turn of the 21st Century, open plan living with a bench height 'cooker island' is the common model in new houses. In this arrangement, the performance of cooking becomes the focus of attention. It has been associated with the trend of men sharing the cooking, particularly as 'hobby cooks'. It has also been surmised that male cooks are supporting the trend of specifying professional and expensive kitchen equipment for domestic use (Cieraad 2002). A glossy Australasian publication of kitchens by international architects, (Hall 2008), displays principally counter height island typologies. In cases of extreme minimalist aesthetic, secret concealed sculleries have been introduced presumably to conceal inevitable mess and untidiness. The multi-purpose central kitchen table also made a return appearance. Material finishes are varied: bench tops in marble, granite, concrete, glass, laminated timber and stainless steel; cabinetry doors are in solid timber, timber veneer, lacquer, plywood, stainless steel and glass. Cabinetry carcases are hidden, but likely to be melamine board. Obvious renovations either reference the design of the host building or are a contrast to it (Hall 2008).

Patterns of kitchen renovation.

Until recently, few kitchen renovations were published in New Zealand design journals. An architect's suggestions for remodelling the villa planned kitchens in the fashions of the time, complete with 'nooks' and living rooms incorporating a dining table (Curtis 1945). No detailed research of the pattern of kitchen renovations in New Zealand has been undertaken, but the analysis of twenty century-old timber villas in 'Villa' (Hansen 2009) suggests some possible trends. Generally young families undertook major renovations opening the back of the house into an open-plan kitchen-family living space, which accessed the garden and an outdoor living space. Generally, owners who chose to live with the original simple 'unfitted' separate kitchens were couples and singles, rather than families. The reasons for this phenomenon are not clear, but perhaps owners are sceptical for the need for modernisation as promoted by the kitchen design industry.

THE KITCHEN RENOVATION INDUSTRY

The role of kitchen remodelling to drive economies was very publicly stated when U.S. Vice – president Nixon argued with the Soviet premier Khrushchev over a model kitchen at the 1959 Moscow exhibition. Nixon stated 'Nothing could be better for the economy than the fact that ordinary citizens grew tired of their new homes within a few years. This kind of psychological obsolescence was the engine of progress' (Crowley 2008).

This recognition had not always been the case. At the turn of the 20th Century, kitchens were utilitarian spaces of little interest to the gentleman architect. Modernism introduced custom-designed kitchen cabinetry. In architecturally designed houses and state houses, these were designed as an

integral part of the home design as a whole, complete with matching finishes and complementing hardware. In 1960's and 1970's New Zealand housing, built in kitchen joinery was fabricated by local joiners, and apart from architecturally designed homes, the joiner would work with the housewife to design her requirements.

In the late 1970's, with the relaxing of import restrictions, a wide range of imported appliances, specialist hardware, finishes and gadgetry flooded onto the New Zealand market. Kitchen design was now so complex that many architects relinquished their role to specialist kitchen design firms. These firms designed, built and installed new kitchens in existing and new houses. In the early 1980's, National Kitchen and Bathroom Association (NKBA) New Zealand formed to consolidate, support and develop the industry. In 2009, Executive Officer, Nicki Mills, confirmed that the NKBA have 270 members with recent 7% membership growth. The aims of the Association's Code of Practice focus on collective business interests and growth. (NKBA 2009) NKBA also deliver training in kitchen design and administer annual design awards which are published in Trends magazine. In the 1980's, the internationally linked Trends design magazine commenced publishing in New Zealand. Magazine articles were advertorials, written to appear as editorials, but scripted and funded by materials and product suppliers. Publications were not dated, however a New Zealand Kitchen Trends (Vol 20, No 2) presents local designs together with novel designs from Australia, Singapore and USA. Such designs play a part in fuelling new fashion trends along with popular lifestyle magazines and 'home make-over' television programmes.

Analysis of New Zealand's housing stock confirms the potential of the market for kitchen renovation. Based on a 2004 housing stock survey (Storey et al 2004), a potential 508,000 pre-1960's houses could require renovation to suit expectations of modern open-planning. The 756,000 houses built between 1960 and 1990 are likely to be open plan but these owners may desire to upgrade the joinery units. Assuming a kitchen renovation costs $20,000, this potential market is worth over $25 billion.

With so much potential profit at stake in promoting churn in kitchen renewal, as US Vice-President Nixon predicted, it is not surprising that discussion of sustainability issues from within the kitchen renovation industry is almost absent.

SUSTAINABILITY ISSUES

Growing awareness of sustainability issues can be tracked via kitchen design guides. In 1994, Bunting realised that 'we can recycle our housing stock to suit our changing lifestyles and improve our houses amenity and quality' (Bunting 1994) but the future recyclability of the kitchen fittings is not considered. Although, Bunting offers sound advice in attending to structural and maintenance issues before renovation, issues of sustainability in terms of materials, finishes and the life-cycle of kitchen fittings are not raised. In 2000, David Cull, raises environmental concerns in relation to timber bench-tops only. A negative choice criteria is that 'unsustainably harvested timber offend eco-conscious homeowners' (Cull 2000).

In 2009, NKBA confirmed that the association does not 'have an environmental policy but many of the large supplier companies (e.g. Laminex) they deal with do'. This reply suggests that environmental issues are considered to be related to materials selection only. The Laminex Group's environmental policy (The Laminex Group 2009) has laudable aims, but a principal product, Formica Melteca on Superfine particle board, offers huge challenges. It is licensed by Environmental Choice New Zealand but it does emit formaldehyde, low levels of VOC's and meets the durability requirements of NZBC B2.3.1(c). This standard requires a 5 year minimum life only. Presently,

Laminex offer no solution for disposal at the end of their product's serviceable life, but are 'committed to product stewardship' and are presently investigating processes and technologies to collect and re-use it. In October 2009, Laminex confirmed that they did not have a solution.

Consideration of materials in a single renovation project is a limited view. Brenda and Robert Vale also found 'the current discussions surrounding the 'healthiness' of buildings focus on their materials, ignoring user behaviour' (Vale & Vale 2009). The excess in kitchen facilities and churn of kitchen re-modelling are more fundamental issues. Kitchen renovation is essentially a consumer product and consumption is driven by a large industry.

As such, many writers are investigating how the excessive use of materials and wasteful 'churn' might be slowed. The voluntary simplicity movement, (Doherty & Etzioni 2003), has arisen as a response to consumer culture. The values of this emerging way of life are material simplicity, human scale, self-determination, ecological awareness and personal growth. The current kitchen market paradigm could change from selling fashionable limited life cabinetry to selling first class durable products, easy repairable products, components able to be personalised, well-crafted DIY systems or simple and imaginative designs for refurbishment. These more personalised strategies are more likely to give 'authentic satisfaction'. Ehrenfield proposes that 'authentic satisfaction' as a pathway out of addiction to commodified technological consumption (Ehrenfield 2008). He proposes that 'businesses should serve the identities of humans rather than the secondary needs of capitalism'. Knowledge and appreciation of architectural design heritage could act as another driver to slow churn. In 2009, Home New Zealand magazine presents a kitchen refurbishment in a 1960's house by architect Vladimir Cacala (Noble 2009). The doors of existing cabinetry are re-painted in 1960's fashion colours. However, the caption stating that it was 'on a strict budget ($11,000 including the fridge)' suggests the owners desired more sophistication.

CONCLUSION

Kitchen re-modelling has become a pre-occupation for many New Zealanders. Changing social patterns have placed the kitchen as the 'hub of family life'. The kitchen is no longer just a utility for preparing food. The layout can support desired family interaction and participation. The style can be an expression of family values, identity and status. The 'dream kitchen' is a common aspiration.

The kitchen renovation industry, the designers, installers, product and appliance suppliers have capitalized on this social phenomena by promoting and advertising continually changing fashions and styles. The kitchen cabinetry is based on a panel system of melamine coated medium density fibreboard (mdf). Although the surface is durable, the product does not patina and it cannot be repaired or deposited of without polluting the environment. This market induced 'churn' of kitchens is wasteful and polluting. However, the industry has a vested interest in promoting large elaborate kitchens as status symbols and in regular remodelling. Discussion of sustainability within the sector is almost absent.

A sustainable future would support fewer kitchens (and more communal cooking), smaller simpler kitchens (to suit the dwelling occupancy and need), less renovation (to respect our cultural heritage and identity), more re-use of fittings and fixtures, materials that patina or can to repaired, materials with long-life and designs that can accept change. The need for self expression, both in designing and making, are best attached to resource-rich long-life treasures or temporary easily recycled or composted components.

At present, the largest issue is the apparent lack of awareness of both the kitchen design industry and their consumers of the complex dynamics and environmental implications of current kitchen renovation practice.

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