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Adriano Paolella and Giamila Quattrone

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Addressing Cultural, Social, Environmental Sustainability in Architecture: The Approach of Five Contemporary Australian Architects

Adriano Paolella, Università degli Studi Mediterranea di Reggio Calabria, Italy
Giamila Quattrone, Università degli Studi Mediterranea di Reggio Calabria, Italy

Abstract: Regionalist architecture offers a promising and conscientious response to the present scenario of growing trend toward cultural, social and technical globalization. It has a great potential to preserve local cultural identities, despite the spread of global culture, to define possible relationships between construction and natural, cultural, political, economic and social factors, to combine traditional approaches and technical skills creatively and to suggest a new role for designers, as active subjects in dialogue with the manufacturing sector. An exemplary regionalist approach to contemporary architecture is given by a niche of Australian architects sensitive to the relation between communities and technical skills, dwelling patterns and building techniques, who tend to reduce the environmental load of construction through the use of local resources, who adopt community design processes and combine tradition with creative innovation. Glenn Murcutt, Richard Leplastrier, Peter Stutchbury, Gregory Burgess and Troppo Architects, who, learning from Aboriginal people's sacred respect for the land, balance the tension between global needs and local expressions, by listening to people and place, preserving traditional lifestyle preferences and combining new technologies with historic building types.

Keywords: Regionalist Architecture, Sustainable Architecture, Creative Innovation, Tradition, Social Behaviours

Introduction

CURRENT HOMOGENIZATION OF cultural identities, generated by the world-wide production and distribution of goods, has repercussions on people's well-being and on the environment integrity. This situation has led to ecological alteration as well as the loss of regional identities.[1]

Within the built environment, traditional construction techniques are undermined by the introduction of new industrial materials and systems, which results in the loss of local building skills. Imported technological solutions do not always fit local conditions, community needs and individual customs. Their use produces economic and social dependence because communities have to rely on external sources which are concerned with material and labour supply. Technological systems are ready-made and just assembled on-site that binds people to depend on external suppliers for maintenance and repair operations. Their distribution is promoted by industrial manufacturers interested in widening their market, by big construction firms aiming to reduce costs, by specialised press operations that are often directly connected with industry marketing efforts.

Such widespread phenomena, deeply modifying a sector that is fundamental for people's economy and survival, should be more critically dealt with. Many designers are enthusiastic about solutions proposed by the global market and are not very interested in developing a critical role within the society and to acknowledge the social, economic, cultural peculiarities of place in their work.

On the contrary, they are greatly interested in their own creativity, in architectural morphology, in the correspondence between the project and global construction and communication models. This results in works that are lightweight, transparent, shiny, made up of industrial techniques/materials/components, hypercreative, evocative, socially disengaged and uncritical. Only a few designers practise the conservation of traditional building techniques and, because this is a difficult task in an era of standardised lifestyles, a critical action aiming at maintaining the building sector independent on models harmful to the environment and society, is necessary.

The critical regionalist approach of five Australian architects - Glenn Murcutt, Richard Leplastrier, Peter Stutchbury, Gregory Burgess and Troppo Architects - shows that it is possible to design with specific languages relating to local conditions, communities and places, without renouncing one's creativeness or being addicted to the cultural processes supporting goods production.

[1] The introduction is by Adriano Paolella.

Built Environment-Community Culture: a Relationship in Crisis

Originally, man lived according to natural, technical and cultural factors (Postiglione G., 1999, p.15).[2]

Natural factors such as climate and topography are independent on time and affect the built environment's morphology. *Technical factors* vary depending on time and are represented by materials available, economic resources, technical skills. *Cultural factors* vary as well depending on time, and are constituted by socio-cultural behaviours that affect dwelling patterns. Man has developed over the millennia with a remarkable ability to modify the environmental macro-system, adapting it to his living, social and material needs. His approach to nature has changed from a direct exploitation of natural resources to a technically conscious modification of the environment, in order to build his living spaces.

Traditional architecture, often called "vernacular" or "regional" architecture, and characterized by modest economic resources and simple building technologies, had a soft impact on its environment, grew from necessity, and consciously employed readily available physical resources (Postiglione, 1999, p.11). It expressed the result of a delicate balance between needs and shelter. Traditional architecture was a truly sustainable architecture, in the sense that it optimised the few resources available, avoided waste, and adopted the common techniques of a skilled social group. On the contrary, contemporary architecture appears increasingly less related to specific places, communities and cultures, more often linked to generic technological progress. This practice is deeply affecting the delicate man-nature relationship, exploiting natural resources and leading to the loss of traditional local cultures and communities' technical skills (Pallasmaa, 1996, p.133). In the present scenario of ecological crisis as well as loss of cultural and social identities, an architecture aiming at rediscovering values and meanings of the different regional construction and dwelling traditions is the only credible alternative to the brand of banal and ubiquitous development that mindlessly repeats forms, materials and technological solutions all over the world, regardless of location.

Five Australian Regionalist Architects

Respect for the landscape, respect for the land: there are five Australian contemporary architects who are genuinely interested in environmental sustainability they have learnt from Aboriginal culture and try to implement this lesson into their works, in pursuit of cultural and social appropriateness in making sustainable architecture.

Aboriginal people look at the land as cradle and grave for all living beings, they consider it as a mother that sustains the life of humans, animals and plants, on which their hunter/gather-based existence depends (Rapoport, 1975, p.44). As a consequence, they have established an exemplarily sustainable relationship with the land based not on ownership, but on dependence on it for survival.

The sustainability of their attitude to the land is particularly manifest in the way, as a nomadic people, they treat the land, considered not as place for permanent buildings, but for temporary lightweight shelters built out of locally sourced natural materials that decompose and return to nature. Their traditional saying "touch this earth lightly" well synthesizes an ideal of environmentally aware construction that aims to minimise land disruption (Drew, 1985, p.54).

A similar environmental concern about land integrity preservation along with the goal of establishing a strong cultural and ecological relationship between architecture and place is at the heart of these five architects' work. They re-interpret traditional Australian building types, construction techniques and lifestyles, they are inspired by Aboriginal people's usage of lifting their shelters above the ground in order to preserve the land from permanent damages, adopt either craft or industrial building processes and use local and eco-friendly materials, natural ventilation and lighting to guarantee the building energy and environmental efficiency.

This approach results in a sensitive way of interpreting the architecture-landscape relation, in works which are culturally and environmentally appropriate to the site: a new regionalism, able to combine past and present without generating contrasts, and to overcome the tradition-modernity dichotomy through a constant critical interpretation of the past.

Different approaches to architecture, uses of materials and building techniques, ways of feeling the landscape characterize the work of the mentioned architects, each of them having a peculiar way of addressing regional identities in architecture, depending on the cultural, climatic and environmental features of the context.

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[2] This paper is the result of Giamila Quattrone's ongoing PhD research Housing Patterns and Technology for Local Contemporary Architecture. For a Contextual Innovation in Building Environmental Design: Innovation and Tradition in Australian Design Culture, supervisors Prof. Adriano Paolella and Prof. Consuelo Nava. This is presently being carried out at the School of Architecture and Built Environment of the University of Newcastle (Australia) under Prof. Michael J. Ostwald, with the sponsorship of the 2006 Endeavour Europe Awards - Australian Government - DEST Department of Education Science and Training.

Glenn Murcutt - Pioneer of an Architecture of Place

Reading of place, ecological responsiveness, cultural sensitivity to the wisdom of a 50,000 years-old Aboriginal culture and an "aesthetic of necessity" (Postiglione, 1999, p.18) expressed through technological detailing and execution are responsible for Glenn Murcutt's fame as the first architect to start an approach of Critical Regionalism towards contemporary Australian architecture. During the 1980s, while he was exploring the possibility to adapt the Modernist universal lesson of functional and rational architecture to the Australian climate and landscape, Kenneth Frampton was defining Critical Regionalism as a strategy <<to mediate the impact of universal civilization with elements derived indirectly from the peculiarities of a particular place>> (Frampton, 1983, p.21). The critical nature of such an approach depended, in Frampton's theory, on understanding and re-interpreting the specifics of place, from light intensity and quality to geomorphology to wind, sun and rain patterns.

Murcutt's regionalism is based on the following:

typological: he re-interprets and combines without nostalgic citations typological features from different sources. In particular, he draws on the verandah space of early colonial houses, which beautifully acts as a transition zone between the outside and inside realms, and the Miesian linear plan that allows functional organisation of space;
cultural: he is inspired by the Aboriginal idea of construction temporariness which he expresses through an architecture that wants to "touch the earth lightly," so that his buildings are often raised off on stilts in order to minimise their impact on the ground, and which is also conceived to emphasize "prospect," "refuge" and "aspect" (Murcutt, 1992, p.48);
environmental: he draws on the traditional woolshed, which he consideres a remarkable example of environmental efficiency (Murcutt, 1992, p.47) and bases his design approach on the analysis of the site's climate, topography, hydrography, geology, sun, wind, tide patterns, fire, flora, and fauna. He also adopts a series of strategies to mitigate the environmental damage caused by construction, such as combination of craft and industrial techniques, use of eco-friendly and recycled materials, natural ventilation, correct orientation for light penetration and sun control, and use of thermal mass and insulation.

The reference to traditional Australian rural buildings is clear: rectilinear, long and narrow plans, timber walls making the building able to respond to the changeable external conditions; lattice screened gables letting the air in; corrugated iron ventilated roofs consisting of two overlapped layers so that air can flow through; floors raised on posts to let air circulate and to insulate from damp; box gutters and round tanks for rainwater collection. All these elements reveal Murcutt's appreciation for a functional and environmentally sensitive building typology (fig.1).

Fig.1: Traditional Australian Woolshed

Inspired by Aboriginal journeys through the land from sacred spot to sacred spot (Rapoport, 1975, p.45), he conceives architecture as a path of discovery, an endless travel through the landscape which acts as a source of knowledge of place (fig.2); as a light sheltered resting place, a platform with a roof (fig.3) because humanity needs to be protected from the weather and to be in contact with nature.

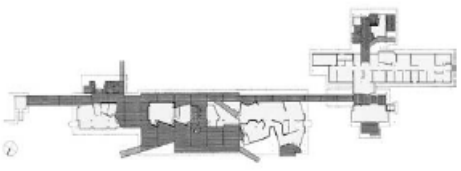

Fig.2: Glenn Murcutt, *Bowali Visitors Centre*, Kakadu National Park, NT, 1994

Fig.3: Glenn Murcutt, *Marika-Alderton House*, Eastern Arnhem Land, NT, 1994

The result of this quest for architecture's cultural roots is openness to the landscape. This is achieved by using glass walls that allow contact between nature and man, by organizing the space in order to guarantee visual in-out continuity through the whole building, by conceiving the verandah as a wall-less room, that breathes, lets the winter sun in and leaves the summer sun out, pushes man into the landscape while providing security and protection from the weather (fig.4) and physical lightness, which is not only use of lightweight materials, but also technological and structural clarity, rigour in technical detailing and volume composition.

Fig.4: Glenn Murcutt, *Ball-Eastway House*, Glenorie, NSW, 1983

However, Murcutt's regionalism also resides in his idea of architecture as a means to reduce the gap between man and his environment, to make him understand the landscape, to recreate the harmonic man-nature relationship.

His buildings, in fact, are sensitively located in order not to alter places' delicate balance and appear perfectly integrated in them through an indispensable form, responding to the context's environmental features. In this respect an exemplary work is the *Bowali Visitors Centre* located in the Kakadu National Park (Northern Territory, Australia) and completed in 1994, which responds to the tropical climate of the region through a floor raised on stilts that prevents floods and allows ventilation underneath, and through steep overhanging roof planes, which drain rainwater, let the sun in during winter and excludes it in summer.

From the choice of site according to the analysis of parameters such as geology, hydrography, climate, wind and sun patterns to the design of the building, Murcutt's main interlocutor is the place that his works aim at supporting and discovering.

The final architectural morphology never derives from a conceited creation act - since Murcutt thinks architecture is not about creation, but discovery (Murcutt, 2003, p.17) - but from a constant investigation of place, resulting in roof slopes and overhangs, glass walls size and sunscreens type, downpipes diameter and tanks capacity, in the choice of thermal mass rather than lightweight materials and in the location of the verandah space. His environmentally sensitive approach involves also a careful selection of materials and technical solutions suitable for a particular place and a specific brief: he usually opts for materials which tend to mitigate the environmental damage, have well-known physical/mechanical properties, derive from sustainable manufacturing or even recycling processes, are locally available and easily maintainable.

Finally, nature is also a model to him, a source of inspiration, an entity to support and imitate. His works' horizontal extension is a way of following the landscape's contours and not competing with trees' verticality, in a nature-artefact relation from which they are both accentuated. In raising off the ground they resemble some rock ledges floating in the landscape, their tree-like struts lighten and ramify with eight (fig.5), just like nature, which gets finer as it gets further towards the extremities (Beck, Cooper, 2003, p.70).

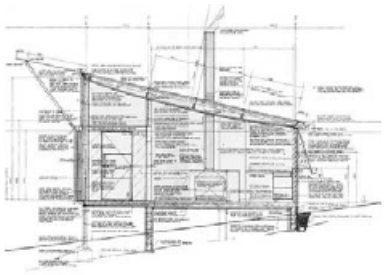

Fig.5 - Glenn Murcutt, *Simpson-Lee House*, Mount Wilson, NSW, 1994

Richard Leplastrier - Craftsman of Boat-like Houses

The uniqueness and extreme delicacy of the Australian natural environment and the indigenous culture's wisdom in the management of the land are major sources of inspiration in the work of Richard Leplastrier.

Relating, on the one hand, to the Aboriginal's way of looking at the landscape and, on the other, to landscape itself, with an attitude of understanding, respecting and preserving, is a primary concern in his approach to design. It results in architectural minimalism materialized in simplified spaces that give room for things to happen and for nature to enter, that do not impose themselves, but leave room to personal interpretation, instilling continuity, peace, transparency, completeness, serenity and respect (Adlercreutz, 2004, p.9).

It also results in ecological responsiveness materialized in a series of design and construction strategies aiming at softening the impact of buildings on a local as well as global scale. He uses rammed earth walls to store heat; lightweight and small size building elements to allow easy transport to remote sites, even by means of boats; recycled hardwood to build post-and-beam structures; dry assembly to allow for a complete dismantling of the components or even of the entire building for future reuse; rainwater tanks and waste disposal systems as practical measures to reduce the building's impact on nature; parasol roofs to screen north elevations from the harsh summer sun.

His buildings open up to the landscape challenging conventional interpretation of comfort and reconnecting man with the natural world by exposing him to its weather, sounds and smells. The buildings also allow a view out towards the surroundings through a small hole in an opaque wall as well as through timber walls that can be top-hung fixed to the roof rafters, which literally turn the house into a big covered platform (fig.6, 7).

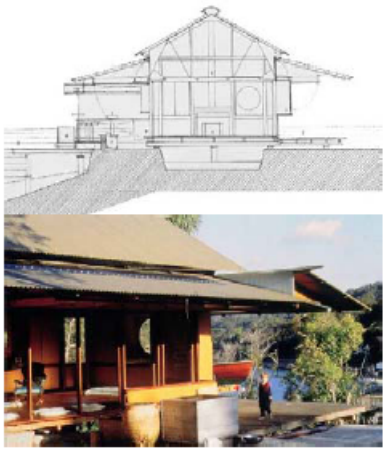

Fig.6, 7: Richard Leplastrier, *Lovett Bay House*, Lovett Bay, NSW, 1994

He applies his expertise as a sailor and designer of lightweight wooden boats to building design to achieve elegant and finely crafted construction as well as appropriate response to climate. His nautical skills enable him to design unconventional technological systems, which allow cross-ventilation and open up the building to the sky: a chord system to operate movable fabric clerestory screens, a hydraulic ram to lift a kite roof, and rolling back canvas screens in order to reveal the carcass-like framework of the building and the natural surroundings (fig.8, 9, 10).

Fig.8: Richard Leplastrier, *House and Studio*, Leura, NSW, 2000

Fig.9: Richard Leplastrier, *Watsons Bay House*, Sydney, NSW, 1998

Fig.10: Richard Leplastrier, *Palm Garden House*, Bilgola, NSW, 1976

His houses explore the concept of adjustable structures that can be attuned to climatic circumstances - like a yacht adjusting to the changes in the wind - in this requiring the users to learn how to "sail" them most effectively in order to achieve comfort (Spence, 1980, p.80); they exemplify the idea of "vessel" for their inhabitants, something that must be operated by them in order to work properly and give comfort.

His approach to architecture, based on an awareness of how structures and materials work in nature as well as in construction, and conceived as a ground for experimenting possible combinations of traditional materials and techniques with new functions, reveals his cultural and environmental regionalism.

The cultural dimension lies in the exploration of Australian outwards-oriented lifestyle through houses conceived of as extensions of camp-sites and spaces reduced to the essential. The cultural sensitiveness and appropriateness of his work goes further: Leplastrier's houses instil the hospitality and lifestyle typical of indigenous people, the "essential" of living of early human settlements (Spence, 1997, p.64), while their often being symmetrical around one axis suggests the idea of community gathering around a hearth to celebrate a social ritual. What strengthens his cultural and environmental awareness and makes it even more credible than his buildings do is his own way of living, genuinely based on that model of respect to the land. In a small one-room house, provided with a large working verandah and a bathroom pod, he and his family set a living example of simple hospitality and a lifestyle akin to that of indigenous people. The house, in fact, recalls the idea of Aboriginal living on a platform under a roof. It is essentially a deck built around an existing hearth - used by the family to cook food and heat water - and a plywood shell that can completely open up to the natural surroundings by folding away its shuttered openings (fig.7).

Leplastrier architecture and lifestyle speak of dwelling, place, community with the same powerfulness and are exemplarily appropriate to the Australian landscape, climate, customs and history.

Peter Stutchbury - Interpreter of Living between the Bush and the Ocean

Deeply influenced by his childhood spent on the family farm in outback Cobar, New South Wales, in touch with harsh climate and robust industrial-agricultural structures, Peter Stutchbury follows his teacher Leplastrier's way in founding his architectural work on the recognition of the uniqueness of the Australian land and appreciation of its landscape, which bring him to sensitively place shelters within it.

Traditional architecture represents a model for contemporary architecture: he constantly returns to the rural shed - an important 19th century building type, which was spectacular in scale, inventive in the use of materials available on site, structurally simple, functionally essential and lacking in decoration - and assumes it as a model for its frank formal logic, its direct adjustment to sun, wind, shade and ventilation.

Stutchbury assumes the honesty and directness of the rural shed as a measure of structural and formal purity, resulting in structurally explicit architectural forms, as well as extremely detailed and exquisitely crafted technological solutions (Goad, 2000, p.16). His work celebrates and reveals the assembly of materials, components and techniques, revealing the direct relation between problems and solutions, lending an air of inevitability. The rural shed's adaptability to a variety of environmental conditions suggests a model for how technological systems can address problems such as natural ventilation, water collection, land integrity preservation, and exposure to sun and wind (fig.11).

Fig.11: Peter Stutchbury, *Bay House*, Sydney, NSW, 2002

This approach leads Stutchbury, on the one hand, to conceive and shape his works so that they appear unique, the only ones fitting the place, tailoring them to their respective landscapes and microclimates, and, on the other hand, to pursue maximum environmental performance at low cost, low maintenance and low energy requirements. This results in a set of environmentally friendly strategies: adoption of the "tree house" typology (Drew, 2000, p.35), consisting in interconnected pavilions located on steep sites and fixed to the ground by means of poles, as low-impact alternative to the stepped type (fig.12), use of passive systems for cross ventilation and sun control, like the parasol roof or roof overhangs as systems able to shade or admit light, correct orientation meaning living areas on the north side and services on the south side, heat storage from solar radiation through north-facing windows and walls, use of recycled components such as posts and beams, dry assembly using fixings to allow both structure and infill elements to be easily disassembled in order to be reused or replaced.

Fig.12: Peter Stutchbury, *West Head House*, Clareville Beach, NSW, 1991

Like his two great mentors Leplastrier and Murcutt, Stutchbury acknowledges the importance of indigenous culture as a powerful base for his architecture (Drew, 2000, p.26). His buildings embody a number of features attuned to the Aboriginal dwelling style: direct access to the outside allowing greater use of open air space through large veranda spaces, conceived as natural extension of living/dining areas to capture the surroundings; accommodation as acceptance, mutuality and extended family that involves the design of large, open plan living areas in order to accommodate mattresses for visitors; location of toilet facilities outside in separate semi-enclosed sections; free spatial arrangement consisting in the composition of separate pavilions with different functions, which reflect social groupings and interaction patterns (Rapoport, 1994, p.279).

His are personal, individual and informal houses that people can experience in intimate ways, rooted in place and influenced by the way users choose to live.

His whole residential production accomplishes the key features mentioned. Through two main building typologies the architect explores the "bush house," designed to preserve instead of destroying the land, its flora and fauna (fig.13), and the "bay

house," which overlooks bays and harbours of the East Coast of Australia. Other major feautures of his work are open plans, free volumes articulation and connection, functional separation of servant from served spaces, minimal and informal furniture, bathrooms where one can experience a shower or sleeping alcoves where one can have a rest looking through the leaves to the ocean (fig.14).

Fig.13: Peter Stutchbury, *Israel House*, Paradise Beach, NSW, 1992

Fig.14: Peter Stutchbury, *Springwater House*, Seaforth, New South Wales, 2003

Gregory Burgess - Promoter of an Ecology of Culture

Founded on philosophical reflections on man, community, and nature Burgess' architectural production explores the designer's social role, considered crucial in recovering the damaged relationship among those elements (Burgess, 2004, p.4).

Architecture is viewed by the architect as a process, not just a product, which is rather the visible result of a complex process among different subjects. <<The process is a dance of constant negotiations. At the end of the process, the trace of the dance is seen in the building. In this process the architect leads a complex collaboration, that folds culture, place and people, into a new relationship with each other, effecting transformation>> (Burgess, 2005, p.47).

Architecture is, therefore, a unique and powerful medium to go back through the cultural layers of a community and recover its shared values that can help recreate meaningful spaces and relationships, able to delight, calm and move the soul.

Burgess poses the question of the viability of an architecture expressing cultural memory, connectedness and sociability, claiming that <<cultural sustainability is what must exist prior to and concurrently with the sustainability of energy resources and an ecological sustainability>> (Burgess, 2005, p.47).

He borrows the metaphor of the beehive from the German social artist Joseph Beuys (Burgess, 2005, p.47) who used honey in his sculptures as the signifier for the feeling life of ensouled community - to metaphorically describe the city. Like a beehive, the city is full of communal life and connectedness and it spiritually nurtures an entire community. The building is compared to a cell of the beehive, the community to a cluster of interrelated cells. This approach underlies a deep and holistic understanding of people and community - that resides in his authentic cultural regionalism - and an idea of buildings seen not as static objects, but organic beings infused with life, which have an edge conceived of as a "radiance" connecting the building to its surroundings and to people, as place of spiritual symbiosis between architecture and nature.

This is explicit in buildings, mainly visitors centres, designed for Aboriginal communities from the desert areas of central Australia, in which the idea of architecture as guardian of the sacred Land and its Dreams is exemplarily expressed by organic and dynamic volumes, inspired by natural forms or indigenous ancestors images such as snakes (fig.15).

Fig.15: Gregory Burgess, *Uluru-Kata Tjuta Cultural Centre*, Uluru, NT, 1997

All his architectural production explores centripetal and centrifugal forces, dynamism, symmetry, asymmetry, the organic and the crystalline. Architecture is conceived of as *becoming*, representing the emergence and growth of an idea or belief, and as *movement*, being both an ordering and an unfolding of narrative (fig.16). It is also *dance*, through and within divergent spaces and changing materials, textures and colours, which reconciles spirit and soul in acknowledging opposites and dualities, and *responsiveness* to the urban environment, to community interests and needs, to practical and economic demands (fig.17) (Burgess, 2004, p.2-18).

Fig.16: Gregory Burgess, *Thomas Carr Centre*, Melbourne, VIC, 1999

Fig.17: Gregory Burgess, *Eltham Library*, Eltham, VIC, 1994

Burgess adopts organic geometries and patterns that materialize in gently curved spaces expanding and spreading onto the site, with which they establish a relationship of continuous and mutual exchange, while meshes of forms constitute a matrix to order, arrange or give the space proportion of harmonic and symbolic resonance, such as the vesica pisces or "fish bladder" (Hamann, 2004, p.94). This is a semi-elliptical pattern, formed when two identical circles are placed within a larger circle and internally overlap, which is often used by Burgess in plan and section to arrange space or applied to single architectural elements, such as a lantern, to filter light and give it an almost metaphysical quality (fig.18).

Fig.18: Vesica Pisces Motif Applied to a Timber Lantern in the *Thomas Carr Centre*, Melbourne, VIC, 1999

His work's cultural and ecological sensitivity incorporates: the combination in construction of craft with industrial components; the adoption of participatory design processes as an action of concrete social sus-

tainability; the use of timber pole frames produced and assembled by local workers as a cost-effective construction technique allowing for future dismantling and reuse; the use of natural and ecological materials such as rammed earth, terracotta bricks, natural paints; the return to radial trunk cutting in order to minimise waste and use as many pieces as possible to obtain all the structural elements required; the use of wide roof overhangs to protect walls from sun and rain and the adoption of the open plan to maximise natural ventilation of indoor spaces (Burgess, 1997, p.103-111).

Troppo Architects - Theorists of Climatic-specific Design in Tropical Australia

Inheriting and accurately re-interpreting Beni Burnett's early 20th century tropical houses, Adrian Welke and Phil Harris, founders of Troppo Architects Darwin, have developed a regionally specific architecture for the Top End of Australia. A detailed survey carried out on the Top End's domestic architecture revealed the functionality and climatic appropriateness of the louvred and slatted houses of the region, provided with folding shutters, louvres, roof overhangs and awnings shading as tree canopies (Welke, Harris et al., 1978). Welke and Harris have assumed this building typology with its adjustable skin as a model for a design approach sound to the tropical climate and a design philosophy revolving around the key concepts of cultural appropriateness, environmental responsiveness, and social behaviours. Far from being a design manifesto, that survey points out a set of guidelines and principles for a good architecture in the Top End of Australia.

Troppo's architecture originates from the certainty that man in this particular region can not avoid landscape and climate, but has to withstand it by keeping out rain and sun, reducing heat, accommodating humidity, keeping away insects and reptiles. That is why their buildings are never designed as fortresses, barriers to the natural forces, but as filters and shelters to live under (Goad, 2005, p.103-104). There is no point in escaping the Wet and Dry seasons, so their buildings acknowledge these natural phenomena without thwarting them. The house is, therefore, interpreted as an organism that must be protected from the heat through the building envelope, which is conceived of as an adjustable skin, a tissue infinitively receptive of external changes and able to adjust, as the human skin does. That is why the broad use of operable building elements, such as folding shutters and battens, louvres (fig.19), insect meshes replacing common walls (fig.20), roll-down blinds, shade cloths or wide roof eaves casting deep shade. Furthermore, to provide natural ventilation, they often employ pitched and pyramid roofs with ridge vents to extract hot air.

Fig.19: Louvres and Folding Doors in the *Pee Wee's Restaurant*, Darwin, 1998

Fig.20: Insect Meshes in Place of Conventional Walls in the *Rozak House*, Lake Bennett, NT, 2001

The whole house must be, in their philosophy, infinitely adjustable and extendible, potentially unenclosed, through the use of an open frame which allows to overcome the traditional split between inside and outside (Goad, 2005, pp.103-104). The in-out fusion is further accentuated by the battened verandah, which is brought inside the perimeter wall to provide a ventilated floor and by the "Bali bathroom" (fig.21). This is designed as an open pavilion or semi-enclosed space so that air can freely flow in and out to prevent condensation and mould, and people can experience nature from close in celebrating the act

of bathing. Troppo's environmental consciousness responds to the local shortage of natural building materials trough the idea of the building as a kit of parts (Goad, 2005, pp.103-104) - transported materials assembled on-site and allowing recycling, such as corrugated iron sheets, steel profiles, plywood panels, fibre cement panels, glass louvres - and to local technical skills and economic resources through the use of welding joints, which represent the most extensively adopted joining system and, as a matter of course, the cheapest.

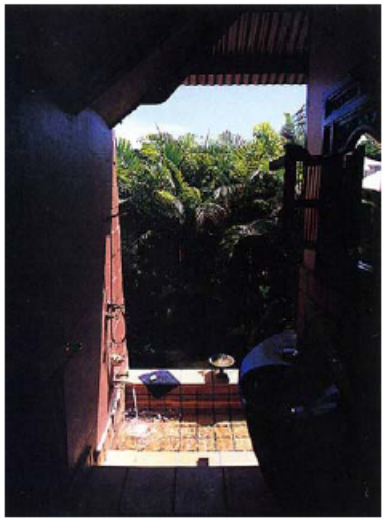

Fig.21: Troppo Architects, *Thiel House*, Darwin, NT, 1998

Troppo's houses are designed as organisms that can grow as time goes by, with supplementary units - guest pavilions, bathrooms, kitchen decks - that can be further added, transforming it in a sort of community of rooms, with different degrees of privacy and openness, according to their users' change of needs. Spaces between these units become outdoor rooms, while the house itself becomes a sort of small village. Besides, their works suggest the image of the primeval shelter, a stilted platform protected by a roof on which one can live, the image of the tent provided by lightweight sleeping boxes with a steel frame and metal cladding, elevated above the ground, roofed by stretched white canvas paraboloids, topped by spherical ventilators (fig.22). Lightweight structures employ low-maintainance materials, such as steel frames and cladding that are easy to transport and replace, while fragile materials, such as glass, are avoided for reasons of safety and durability.

Fig.22: Troppo Architects, *Kakadu Housing*, Kakadu, NT, 2001

Conclusions

The insight into this niche of contemporary Australian architects, who are sensitive to climate, place and people and address issues of environmental and cultural appropriateness in approaching design, features an alternative to the ongoing global and self-referential architecture.

Drawing on tradition, culture, history - whether it means adapting an old building typology to present-day needs or recovering traditional construction techniques or learning from indigenous people to look at the landscape and minimise its disruption - can be a viable way of resisting the commodification of architecture that a mindless use of technology is producing worldwide. Away from the Australian context, its spectacular natural environment and the wisdom of its Aboriginal peoples, the same strategies might not work because of the differences in climate, environment, culture, but the principles that underlie those strategies will definitely be appropriate to any context in the world.

These are: look back to the past in order to deeply understand the historic layers to which a good architectural work must add value; draw on the environmental and social appropriateness of traditional and vernacular architecture to create spaces and forms that are energy-efficient, functional, open-ended, responding to their users' lifestyle and needs; combine natural with industrial materials and components and integrate craft with manufacture; give room to creativity and imagination not just in form-making, but also in tailoring solutions for specific problems; actively involve the clients along the whole process to better understand their wishes and be able to design buildings that will address their requirements.

These tenets might serve as design guidelines and as such must be adapted to the specifics of context to generate an architecture of place.

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Fig.8: Richard Leplastrier.
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About the Authors

Prof. Adriano Paolella
Associate Professor of Architectural Technology at the Faculty of Architecture of Reggio Calabria, he teaches "Environmental Design and Renewal Techniques" (3rd year subject) and "Architectural Technology" (5th year subject) and is coordinator of the TRESA "Technologies for the Ecological and Social Development of Living Spaces" Research Unit. He is a permanent member of the PhD Panel in Architectural Technology at the DASTEC Department and he is often appointed as a committee member to assess doctoral theses in Environmental Design. From 1995 to 2003 he was General Secretary of the IAED - International Association for Environmental Design - of which he has been President since 2004. In the editorial field he founded in 2004 the international journal *II Progetto dell'Abitare*, of which he has been editor-in-chief since then; from 1976 to 1998 he was editor of the cultural journal *Dismisura*, in 1985 he founded *Fines-Rivista di Studi Territoriali e Ambientali*, which he ran until 1990; from 1995 to 2003 he was editor-in-chief of the journal *Attenzione*, published by Edicomp and WWF. Since 1995 he has been editor-in-chief of *Tevere*, the Tevere Basin Authority's journal.

Giamila Quattrone
PhD Candidate in Architectural Technology at the Faculty of Architecture of Reggio Calabria (Italy), supervisors Prof. Adriano Paolella, Prof. Consuelo Nava, she is currently Visitor Research Associate at the School of Architecture and Built Environment of Newcastle (Australia). Here she has been carrying out a research titled "Housing patterns and technology for local contemporary architecture. For a contextual innovation in building environmental design: innovation and tradition in Australian design culture", with the sponsorship of the 2006 Endeavour Europe Awards from the Australian Government and the supervision of Prof. Michael J. Ostwald, June 2006-June 2007. Interested in the relations between dwelling patterns and technology underlying regionalist architecture, she focuses on the environmental, social and cultural appropriateness of Australian contemporary architecture based on use of local resources, on morphological, material and visual integration of buildings into their settings, on context-specific innovation and critical interpretation of regional settlement and dwelling patterns, lifestyles and material culture. Case studies are Glenn Murcutt, Gregory Burgess, Peter Stutchbury, Richard Leplastrier, Troppo Architects, which she has been investigating since her participation in the 2004 Glenn Murcutt Master Class through research papers presented at international conferences and published in the journal *II Progetto dell'Abitare*, of which she is one of the managing editors.

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