



World Renewable Energy
Congress XXI

MU Murdoch
University

Renewable Energy: A Pathway to Economic
Recovery & Climate Change Mitigation

Murdoch University, Perth, Western Australia, 4 - 9 December, 2022

ENTRY DATE HAS BEEN EXTENDED to 20th November.

Student Architecture Competition for Holistic Health in Design - Call for submissions

The following presents context and guidelines for **4th and 5th year students of architecture** to enter a global competition within the World Renewable Energy Congress conference being held at Murdoch University, Perth, Western Australia from 4 - 9 December 2022.

Prizes will be awarded:

1st Prize.....	AUD 3,000
2 nd	AUD 2,000
3 rd	AUD 1,000

The date for entries has been extended to Sunday 20th November. The top 30 entries, that have been short-listed by a specialist international committee of judges based on these design requirements, will be printed and displayed at the conference for final judging. The prize-giving will be performed during the conference closing ceremony and with an online connection for overseas entrants to join.

In addition to the monetary prizes certificates will be awarded to 10 entrants deserving of special commendation for concentrated effort in specific areas of architectural design set out in the criteria at the foot of this document under ‘criteria.’

**Entries must be submitted via the link provided under ‘Competition’
in the conference website, www.wrec2022.com/student-competition.php**

The Context

Humans are harming the planet’s ability to sustain life as we know it, possibly beyond repair. The natural world now occupies a fraction of the earth’s landmass and the land area required for food production increases daily, compromising forestry and exacerbating climate change. We have increased carbon emissions in the atmosphere to above 440 parts per million and have

been unable to stem a steady increase and reduce greenhouse gas emissions in order to prevent well-publicised catastrophic results. Anthropologists may conclude that our global culture is proving itself to be dedicated to patterns that will erode our living standards by permanently altering our earth's ecology and climate.

Perhaps humanity is underutilising and underestimating its innate creative and cultural capacity.

Architects have a special, interdisciplinary role in our world to join the disciplines of science and art in search of ways to secure our future, a role that goes back at least to the Romans. Traditionally, over eons, it has been the artist's role in society to institute new models of perception that underwrite changes to culture and lead to new, more successful, patterns of behaviour. In recent centuries, it is also the scientist's role to do the same. Both are concerned with breaking the shackles of instant perception and habituated behaviour.

Vitruvius in the 1st century BC articulated the architect's role as follows: a building must be structurally sound; must provide a comfortable environment; and must be a delight to the eye. In modern health terms, it must not fall and injure its occupants, it must create healthy spaces, and must support the emotional health of its occupants. Today, we would clearly add the requirement that architecture must not harm the health of the planet.

These challenging times are taking place during a period of great disruption to traditional forms of human interaction and communication. Current communication norms – where news may not be factual, where social media may be anti-social and where communities may not exist together – is diminishing our collective capacity to identify good science and art, is harming mental health and may be inhibiting our cultural evolution. Indeed, some persuasively argue that culture cannot be evolved through digital interaction.

What can the architect do about all this?

In this competition, we extend the Vitruvian mandate as follows: as well as allowing a healthy planet, architectural design should also be promoting face-to-face interactions. In this way, we can reinstate the role of art and science in the context of face-to-face settings to allow our global culture to evolve past its present course of global resource depletion and warming. (*Context author – John Tolhurst*)

The brief

Entries will be schematic designs submitted online suitable for printing in A1 size, portrait or landscape orientation. Concepts should include 3D images, and text explaining the design limited to 1x A1 size sheet.

Concept

This competition calls for 'bioclimatic' designs to create accommodation for family and extended family grouping as a small cluster of simply designed affordable structures on a 1,000 sq m to 2,000 sq m site. (depending on the scale chosen for the

Cluster design). The topography can be assumed or based on a real site for the design. The intent of this style of living is to be a large contributor to reducing the effects of Climate Change, by:

- limiting resource and energy use; and
- by allowing a community sensibility to emerge, characterised by good mental health as a vehicle for cultural adaptation.

The concept can incorporate retrofitted existing buildings or can be new concept from first principles.

The design should:

- Provide for maximum use of solar and renewable energy technologies
- Accommodate a shared area for organic food production
- Maximised water harvesting
- Include a communal grey water system
- Incorporate use of waste and composting appropriate to the site area selected for the design
- Include waste minimisation and shared collection point
- Accommodate a communal workshop area to help create employment opportunities and a shared base for home maintenance and repairs.
- Introduce architectural design and technological innovation that fits within the brief requirements and does not involve excessive cost to construct.

Occupancy

Provide a maximum of eight buildings (preferably less) for young singles, young family, middle aged and elderly, sharing but with separated private living options.

Planning Pattern

- Allow for best possible use of orientation for natural comfort and economic use of solar panels.
- Maximise biophilic design to ensure greenery benefits for all.
- Provide appropriate insulation strategies for the particular geographical location and climate zone
- Maximise the use of local materials and industry.
- Apply low embodied energy materials for light weight *and* heavy weight solutions.
- Show how the integration of thermal inertia and architecture for longevity can be adopted for at least some of the buildings.
- Include communal facilities that contribute to core architecture of the cluster.
- Show how natural ventilation can be maximised to create low-cost thermal comfort for all occupants.
- Provide some basic information on projected costs and how local resources are used to create the “Cluster”.
- Explain how the pattern adopted for the “Cluster” or Compound may be repeated as part of a hamlet or wider eco-village, or as part of an existing built-up area converting a precinct into a new pattern for living in the 21st century.

The Outcome

The type of living proposed will take into account local cultural customs. Concepts will contribute to a healthy future for humanity and our planet and form a component of our global ongoing aspiration for healthy people on a healthy planet.

The Criteria

Each criterion is equally weighted:

1. Resource economy in achieving structural performance.
2. Provision of managed, sustainable thermal and ventilation control.
3. Generosity of architectural delight offered to inhabitants.
4. Protections offered to the health of planet, through minimising the impact on the environment.
5. Forms that induce strong local community interaction and cultural growth.

Competition Director: Professor Garry Baverstock, AM.
Adjunct Professor School of Engineering and Harry Butler
Institute, Murdoch University, Perth, Western Australia.

International Jury Chair: Professor Manuel Correia Guedes, Professor of Architecture at
Instituto Superior Técnico, Lisbon, Portugal.

International jury members: Prof. Garry Baverstock.
Prof. Manuel Guedes.
Mr Matt Wallwork, Ecotecture Perth, WA.
Mr John Tolhurst, Siphous Supplies, Perth, WA.
Carolyn Marshall, Curtin University and Life Fellow Australian
Institute of Architects.
Nigel Shaw, Life Fellow Australian Institute of Architects & Hon
Fellow American Institute of Architects.
Prof. Mohsen Aboulnaga, Department of Architecture, Cairo
University, Egypt.

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We are extremely grateful to our sponsors for their generous financial contributions:

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