

## List of MNDRF awarded projects for the MNDRF RFP 07/01

Name of PI/ Co-PI	Collaborating organisation	Project objective
<b>1. Building air dehumidification powered using biomass from horticultural activities</b>		
<b>Wong Luh Cherng (PI)</b> Dr Tan Lay Pheng (Co-PI) Dr Willy Tan (Co-PI) Ho Siew Hoong How Man Lan	Republic Polytechnic  NParks Pyrolysis and Gasification Consultant	To build an environmentally-friendly pilot-scale building air-dehumidification system to demonstrate the heat energy obtained from gasification of biomass (waste from horticultural activities) can be linked to desiccant wheel dehumidification, thereby reducing energy consumption for air conditioning, while maintaining pleasant living environment in tropical climate condition.
<b>2. Advanced daylighting and photovoltaic in high performance envelopes of buildings in the Tropics</b>		
<b>Dr Stephen Wittkopf (PI)</b> A/Prof Lee Siew Eang A/Prof Wong Nyuk Hien Alice Goh/ Patrick Poh Chua Eng Bee  Yeong Weng Fai Sunny Sim	NUS  BCA Beca Carter Hollings & Ferner DP Architects Davis Langdon & Seah	To demonstrate and investigate the use of solar energy to a) reduce energy consumption through Advanced Daylighting replacing electrical lighting; b) generate electricity through Building Integrated Photovoltaic (BIPV) envelope.
<b>3. Future Green School of ZEB@BCA</b>		
<b>A/Prof Wong Nyuk Hien (PI)</b> Dr Stephen Wittkopf Prof Mat Santamouris Alice Goh/ Patrick Poh Philip Chong Chua Eng Bee  Yeong Weng Fai Sunny Sim	NUS  University of Athens BCA MOE Beca Carter Hollings & Ferner DP Architects Davis Langdon & Seah	To develop a prototype system for future green school, which is green, sustainable, energy efficient with conducive indoor environmental quality for teaching and learning. To serve as an educational center for students in the studies of energy efficient and green buildings, hands-on monitoring and experiment may be conducted.

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<b>4. Zero Energy Building at BCA's Academy (ZEB@BCA)</b>		
<b>A/Prof Lee Siew Eang (PI)</b> Dr Stephen Wittkopf A/Prof Wong Nyuk Hien Alice Goh/ Patrick Poh Chua Eng Bee  Yeong Weng Fai Sunny Sim	NUS  BCA Beca Carter Hollings & Ferner DP Architects Davis Langdon & Seah	To create a vibrant and sustainable living environment, particularly in achieving excellence infra-structure for R&D in the areas of Green and Energy Efficient Technologies and Indoor Environmental Quality.
<b>5. Integrated energy sources and efficiency design towards a Zero Energy Building at BCA Academy</b>		
<b>A/Prof Lee Siew Eang (PI)</b> Dr Stephen Wittkopf A/Prof Wong Nyuk Hien Alice Goh/ Patrick Poh Chua Eng Bee  Yeong Weng Fai Sunny Sim	NUS  BCA Beca Carter Hollings & Ferner DP Architects Davis Langdon & Seah	To demonstrate the quality and healthy living may be sustained, by developing, adapting and integrating renewable energy sources and energy efficient design and solutions such as ventilation, air-conditionings, control systems into construction development.
<b>6. Feasibility study of desiccant cooling/ dehumidification with chilled ceiling/ beam air-conditioning systems</b>		
<b>A/Prof Wong Yew Wah (PI)</b> A/Prof Ho Hiang Kwee A/Prof Toh Kok Chuan	NTU	To develop simulation models for performance evaluation of desiccant dehumidification in parallel with chilled ceiling air conditioning system.
<b>7. Feasibility study of combining desiccant cooling powered by solar heat (or waste heat) with improved building quality</b>		
<b>Michael P. Hintrbrandner (PI)</b> Matthias R. Peltzer	L-DCS Technology Pte Ltd	To demonstrate and investigate the significant potential of combined solar heat or waste heat as power source for advanced desiccant cooling and improved building quality in order to reduce electricity consumption

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<b>8. Production of aggregates from demolition debris</b>		
<b>Prof Gary Ong Khim Chye (PI)</b> Prof Zhang Min-Hong (Co-PI) Edgar Lim Choon Teck Sisomphon Kritsada Timothy Foo Wan Juang	NUS      Ngee Ann Polytechnic	To examine the use of microwave in recycling of concrete to increase yield in terms of volume of usable quality aggregates from recycling concrete.
<b>9. Innovative Design of Civil Defence Shelters</b>		
<b>Ma Guowei (PI)</b> Ong Teck Soon Raymond Lee Geok Seng	NTU BCA SCDF	To develop cost-effective Civil Defence Shelters that is constructed of cellular sandwiched steel panel with polymeric and heat-insulation infilling material to reduce use of sand and concrete
<b>10. Impact and Airborne Sound Insulation Performance of Party Walls and Floors in Singapore</b>		
<b>Dr Lee Siew Eang (PI)</b> Dr Johnny Wong Liang Heng Wong Wai Ching	NUS HDB  BCA	To develop and recommend suitable impact and airborne sound insulation guidelines for an improved built environment in Singapore.
<b>11. Enhancement of photocatalytic product development and coating systems and application methods</b>		
<b>Dr Kareem Khider Mohamed (PI)</b> Chuang Keng Chew Harry Tan Phay Ping  Prof Ng Kim Choon Dr Chris Cai Ruixiong  Gan Geok Chua  Ng Chong Lin	Haruna (S) Pte Ltd  Building System and Diagnostics Pte Ltd NUS Singapore Institute of Manufacturing Technology Singapore Safety Glass Pte Ltd Starcoat Pte Ltd	To develop a cost-effective local photocatalytic coating with enhancement to its adhesion properties and application methods for on-site and off-the-shelf use.

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<b>12. Development of specialized container technology for growing of street trees in Singapore</b>		
<b>Dr Tan Puay Yoke (PI)</b> Prof Harianto Rahardjo A/Prof Leong Eng Choon Prof Freddy Boey	NParks NTU	To facilitate the movement of mature trees for road-widening, roof-top gardening and special events such as F1
<b>13. Study on local sustainable plant species for sky-rise greenery in the tropical climate</b>		
<b>Gregory Chow (PI)</b> Saiful Anuar Dr Johnny Wong Liang Heng,	Ngee Ann Polytechnic  HDB	To expand the list of workable plant species for pilot test rooftop greening To examine the set of the environmental conditions required for growth of selected plant species and develop procedures and methods to propagate saplings and maintain rooftop vegetation
<b>14. Real-Time Location System (RTLS) for Barrier-Free Accessibility and Services in Buildings</b>		
<b>Keow Yeong Ming (PI)</b> Ong Choong Seng Wong Wai Ching Wong Yeap Wai	NP  BCA CapitaLand Retail Ltd	To demonstrate and investigate the usefulness of integrating RFID/WiFi technologies into building systems and facilities in order to enhance barrier-free accessibility within buildings

BCA: Building & Construction Authority  
 HDB: Housing & Development Board  
 NParks: National Parks Board  
 NTU: Nanyang Technological University  
 NUS: National University of Singapore  
 SCDF: Singapore Civil Defence Force