

MASTER OF SCIENCE & MASTER OF ARCHITECTURE  
**SUSTAINABLE ENVIRONMENTAL DESIGN**

PROGRAMME GUIDE 2017-18



**MSc & MArch Sustainable Environmental Design**

AA SED  
Architectural Association Graduate School  
36 Bedford Square, London WC1B 3ES, UK

T. + 44 20 7887 4025 + 44 20 7887 4069  
[sed.aaschool.ac.uk](http://sed.aaschool.ac.uk)

**The AA is a Partner Institution and Affiliated Research Centre of The Open University (OU), UK. All taught graduate degrees at the AA are validated by the OU. The OU is the awarding body for research degrees at the AA.**



SED staff and students on Graduation Day 26 June 2015

*Teaching Staff*

<b>SIMOS YANNAS</b>	<a href="mailto:simos@aschool.ac.uk">simos@aschool.ac.uk</a>
<b>PAULA CADIMA</b>	<a href="mailto:paula.cadima@aschool.ac.uk">paula.cadima@aschool.ac.uk</a>
<b>JORGE RODRIGUEZ</b>	<a href="mailto:arqjorgerodriguez@gmail.com">arqjorgerodriguez@gmail.com</a>
<b>KLAUS BODE</b>	<a href="mailto:klaus.bode@bdsp.com">klaus.bode@bdsp.com</a>
<b>GUSTAVO BRUNELLI</b>	<a href="mailto:gustavo_brunelli@yahoo.com.br">gustavo_brunelli@yahoo.com.br</a>
<b>HERMAN CALLEJA</b>	<a href="mailto:hermancalleja@yahoo.co.uk">hermancalleja@yahoo.co.uk</a>
<b>MARIAM KAPSALI</b>	<a href="mailto:mariamkapsali@yahoo.gr">mariamkapsali@yahoo.gr</a>
<b>BYRON MARDAS</b>	<a href="mailto:byronmardas@gmail.com">byronmardas@gmail.com</a>

*Visiting Lecturers*

<b>NICK BAKER</b>	<a href="mailto:nickvbaker@aol.com">nickvbaker@aol.com</a>
-------------------	--

*Graduate School Administrative Coordinator*

<b>CLEMENT CHUNG</b>	<a href="mailto:clement@aschool.ac.uk">clement@aschool.ac.uk</a>
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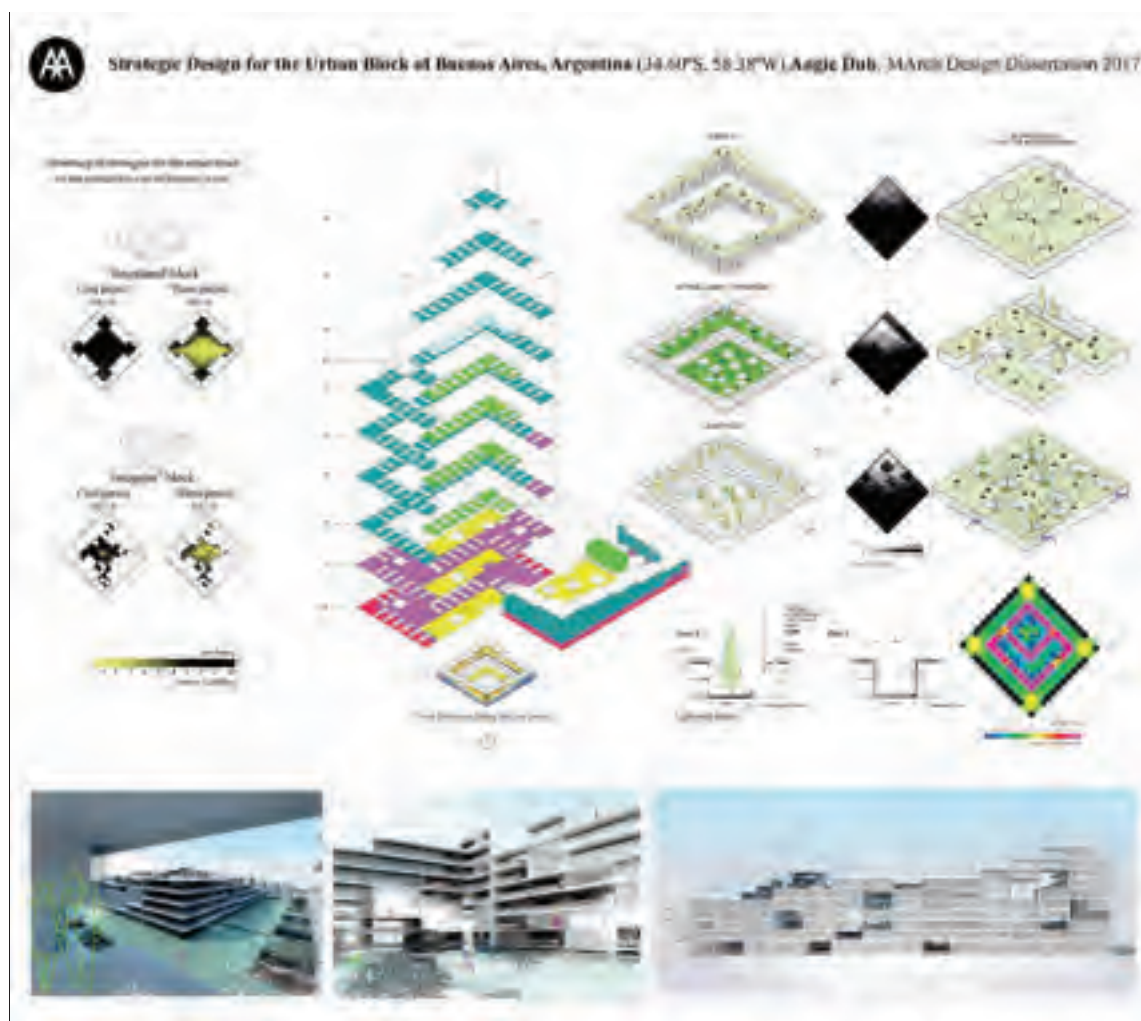
*AA School Registrar*

<b>BELINDA FLAHERTY</b>	<a href="mailto:belinda@aschool.ac.uk">belinda@aschool.ac.uk</a>
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**1 SUMMARY PROGRAMME DATA**

Degree:	MSc & MArch in Sustainable Environmental Design	
Teaching Institution:	Architectural Association School of Architecture	
Programme Validated by:	The Open University	
Duration of Programme:	12 months full-time Master of Science (MSc) 16 months full-time Master of Architecture (MArch)	
Teaching Staff:	<b>Simos Yannas</b>	DiplArchEng AADiplGrad(Hons) PhD
	<b>Paula Cadima</b>	DiplArch PhD
	<b>Jorge Rodriguez</b>	BArch MA MSc PhD
	<b>Nick Baker</b>	BSc PhD
	<b>Klaus Bode</b>	BSc(Hons) HonRIBA
	<b>Gustavo Brunelli</b>	DiplArch MA FRSA
	<b>Mariam Kapsali</b>	DiplArchEng MSc
	<b>Herman Calleja</b>	BArch MArch
	<b>Byron Mardas</b>	DiplArchEng MSc
External Examiners:	<b>Sergio Altomonte</b>	DipArch MPhil PhD University of Nottingham
	<b>Paola Sassi</b>	DiplIng MSc PhD Oxford Brookes University

**MSc / MArch Lecture Courses & Seminars**

1	<i>Sustainable City</i> (Lecture Series)	Term 1
2	<i>Adaptive Architecturing</i> (Lecture Series)	Term 1
3	<i>Environmental Simulation &amp; Performance Assessment Tools</i> (Lecture Series & Software Workshops)	Terms 1&2
4	<i>Environmental Design Primer</i> (Lecture Series)	Terms 1&2
5	<i>Lessons from Practice</i> (Lecture Series)	Terms 2&3
6	<i>Research Seminar</i>	Terms 1-3

**MSc / MArch Studio Projects**

1	Refurbishing the City 1: London Building Studies	Term 1
2	Refurbishing the City 2: Design Research Project	Term 2
3	Refurbishing the City 3: MSc / MArch Dissertation Research	Terms 3&4

**PROGRAMME REQUIREMENTS**

180 credits (1800 hours of study) toward successful completion of the following:

*Term 1 (45 credits)*

- PROJECT I: London Building Studies (25 credits)**  
Introduction: Week 2; Final Review: Week 12; Submission: Week 1 Term 2
- TECHNICAL STUDIES (10 credits)**  
Choice of topics: from Week 3; Submission: Week 1 Term 2 (as part of Project I)
- RESEARCH PAPER I (10 credits)**  
Seminar: from Week 4; Tutorials: from Week 7; Submission: Week 12 Term 1

*Term 2 (45 credits)*

- PROJECT II: Design Research (25 credits)**  
Introduction: Week 1; Final Review & Submission: end Term 2
- TECHNICAL STUDIES (10 credits)**  
Choice of topics: Week 3; Submission: end Term 2 (as part of Project II)
- RESEARCH PAPER II (10 credits)**  
Choice of topics: Week 6; Submission: Week 1 Term 3.

*Terms 3 & 4 (90 credits)*

- MSc DISSERTATION PROJECT (90 credits)**  
Choice of topic & submission DP Outline: end Term 2; Reviews: in Terms 3 & 4  
Submission MSc Dissertation: 14 September 2018
- MArch DISSERTATION PROJECT (90 credits)**  
Choice of topic & submission DP Outline: end Term 2; Reviews: in Terms 3 & 4  
Submission MArch Dissertation: 11 January 2019

## 2 INTRODUCTION & OVERVIEW

### 2.1 Introduction

Sustainable Environmental Design engages with real-life problems affecting buildings and cities across the world. Design research for the SED Masters programme is driven by strict performance criteria following a process of *adaptive architecturing* which proceeds from inside to outside, attuning the built form and its constituents to natural rhythms and inhabitant activities. Key objectives of all SED projects are to improve environmental quality in cities, achieve independence from non-renewable energy sources and to develop an environmentally sustainable architecture that is capable of adapting to changing climates and urban environments.

The taught programme is structured in two consecutive phases. Phase I is organised around team projects that combine MSc and MArch students to engage in experimental and analytical testing of the theoretical knowledge and computational tools introduced in weekly lecture and software workshops. In Phase II, MSc and MArch design research develops independently following individual research agendas related to students' home climates, urban contexts and building types. MSc candidates complete their 12-month course with a research project that documents the applicability and architectural potential of their findings in their selected geographic and climatic contexts. The MArch cycle extends over a 16-month period that culminates in a specific design application for a given site and design brief.

The MSc and MArch in Sustainable Environmental Design are post-professional degrees offering graduates specialisation options to engage in further research, teaching or practice. In recent years the programme's graduates have found employment with some of the UK's leading architectural practices (Arup Associates, Architype, Avanti Architects, Bennetts Associates, Building Design Partnership, ECD Architects, Feilden Clegg Bradley, Foster & Partners, Grimshaw, HOK, KPF, Make Architects, Populous, PRP Architects, SOM, Wilkinson Eyre and many others) and environmental engineering consultancies (Arup, Atelier Ten, Atkins, Chapman BDSP, Buro Happold, Fulcrum, Scott Wilson, WSP Environmental and others). Others have returned home to run their own successful practices or to go into research and teaching. Over the years many of the programme's graduates have achieved senior positions in academia as well as in practice and have themselves influenced the teaching, research and practice of sustainable design in some many countries and climatic regions.

The programme's projects and teaching methods have featured in many national and international events and publications. Latest presentations include the PLEA (Passive and Low Energy Architecture) 2017 *Design to Thrive* Conference in Edinburgh 3-5 July 2017, and publications of research papers in the *Architectural Science Review*, in *Energy and Buildings*, and in the *Sustainable Cities and Society* scientific journals. Other recent events include the PLEA 2016 Conference in Los Angeles, PLEA 2015 in Bologna, Italy, and PLEA 2014 in Ahmedabad, India, where the AA SED participation included an exhibition of MSc and MArch dissertation projects by twelve of the programme's Indian graduates. Earlier events include Ecobuild 2012, the UIA Congress in Tokyo, the PLEA 2011 conference in Louvain-la-Neuve, Belgium, PLEA 2009 in Quebec, Canada, Ecobuild, London in 2009, the Jerusalem Seminar in Architecture 2009, the PLEA 2008 Conference "*Towards Zero Energy Buildings*" in Dublin, the *Sun, Wind & Architecture* Conference in Singapore, the PALENC 2007 Conference on Crete among others. Publications of AA SED staff and student work have also featured in the AD special issue on *Ecological Design Research*, in the books *Green Design: from theory to practice* edited by Ken Yeang, *Architecture & Energy* and *O Edificio Ambiental*, in a special issue of the French-language architectural journal *Carré Bleu*, in the *Architecture and Urbanism* journal published in Tehran, in the Anglo-Chinese *World Architecture*, in the Lisbon-based *Arquitetura e Vida*, the Brazilian *Pós* published in Sao Paulo, the Jamaican *Axis Journal* published in Kingston, in a special issue of the *2A Art & Architecture* journal published in Dubai, and in two recent AA publications, *Environmental Tectonics* and *Articulated Grounds: Mediating Environment and Culture*.

This document provides an introduction to the structure and contents of the MSc & MArch options in Sustainable Environmental Design. It discusses the programme's aims and learning outcomes, its teaching and learning strategies, its resources and assessment procedures and all other matters relating to its organization and implementation. The AA School has a long history in the teaching and research of sustainable environmental design that goes back some 60 years; a brief summary is given below.





## 2.2 AA Chronicle 60 Years of Environmental Design Teaching and Research at the AA School

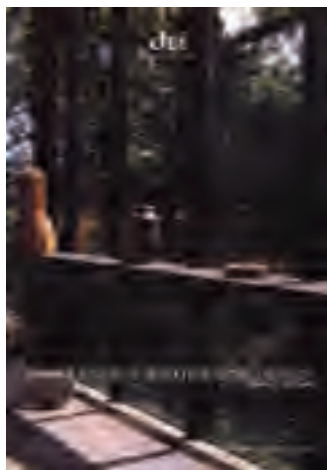
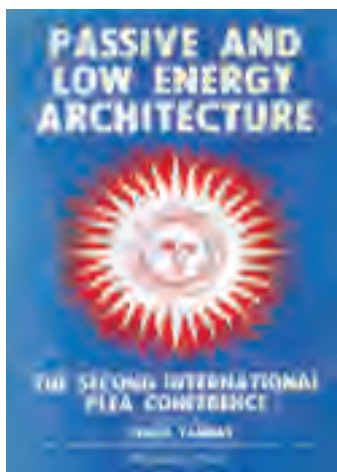
The AA School's involvement in the teaching and research of sustainable environmental design dates from the early 1950's when its Tropical Studies Department was formed to run postgraduate courses in tropical architecture that continued till the early 1970's. This was followed by the one-year Graduate Diploma in Energy Studies, that was initiated in 1974 in the aftermath of the 1973 energy crisis and delivered annually till 1994. In 1994-95 the Diploma in Environment & Energy Studies was validated as an MA. In the 2005-06 academic year the MA in Environment & Energy Studies was replaced by the 12-month MSc and 16-month MArch in Sustainable Environmental Design. These changes have followed from the programme's expansion, in design content and technical capabilities, underlining the importance now given to sustainable environmental design internationally within architecture, engineering and urbanism.

The listing below chronicles some key events and developments over these 60 years:

- 1954-56 The Department of Tropical Architecture (the Tropical School) was established at the AA School under Maxwell Fry. It offered a six-month postgraduate course leading to an AA Certificate in Tropical Architecture for architects from tropical countries and British architects intending to work in the tropics.
- 1957-71 The AA Tropical School was restructured under Otto Koenigsberger and the course was extended to nine months. The curriculum covered a wide range of subjects encompassing all aspects of climatic design relating to housing as well as aspects of economics, building production and financing, site factors and large scale design. The course was addressed to postgraduate students, but was also open to 5<sup>th</sup> year AA students as a specialisation option on their final year. Students completing the three-term course were awarded the Diploma in Tropical Studies (Dipl Trop AA). The Department of Tropical Studies engaged in research and consultancy in several countries. In later years the Tropical School's teaching on appropriate building design for tropical climates was compiled into a book that has since become a classic: the *"Manual of Tropical Housing and Building - Part 1 Climatic Design"* by Otto Koenigsberger, T.G Ingersoll, Alan Mayhew and S.V. Szokolay, published by Longman.
- 1973 - 77 Under Gerry Foley and George Kasabov the Rational Technology Unit (Diploma Unit 10) had a pioneering role in the energy debates of the 1970's. A fairly anarchic bunch of students engaged hands-on with solar and wind technologies, self-building and urban farming, redrawing the map of the UK anticipating the rise in sea level due to global warming. Meetings at the AA debated the role of alternative technology and prospects for alternative societies. The Unit's 1973-74 publication displayed an impressive range of interests and expertise. Gerry Foley's *"The Energy Question"*, with Charlotte Nassim, was published by Penguin Books in 1976. George Kasabov curated the exhibition *"Buildings – the Key to Energy Conservation"* at the RIBA in 1979.



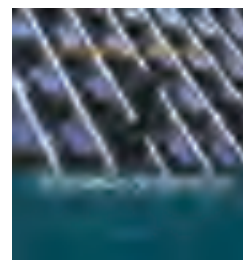
- 1974- The Energy Studies Programme (later Environment & Energy Studies Programme, AA E+E) embarked on its first academic year in October 1974 as one of three new postgraduate programmes started by AA Chairman Alvin Boyarsky in the restructured Graduate School under Royston Landau. The Energy Programme offered a one-year AA Graduate Diploma and two-year Honours Diploma. It was directed by Robert Drew in its first year, followed by Gerry Foley who took over in the mid-1970's, and by Simos Yannas from 1980.
- 1976-80 A collaboration with the Essex Council's Architects Department leads to a series of research projects on energy use in school buildings with funding from the Science Research Council, the UK Department of Education and Science and the Department of Energy. The last of these project addressed the topic of energy education and led to its adoption in the curriculum of primary and secondary schools around the country.
- 1980- Since 1980 some 40 PhD and MPhil research projects were successfully completed on various topics of sustainable environmental design.
- 1982- Simos Yannas became a founding member of the international PLEA (Passive and Low Energy Architecture) network and was entrusted with the technical programme of the 2<sup>nd</sup> PLEA Conference that was held on Crete, Greece in 1983. He later served as PLEA Director and continues as permanent Secretary. PLEA has since held its annual conferences in some thirty countries producing over 30 volumes of proceedings and several special issues of scientific journals.
- 1986- Following a definition study in the early 1980's, AA E+E was awarded a contract from the UK Department of Energy's Energy Technology Support Unit to produce a handbook on housing design in the context of the UK Solar Energy Research Programme. A further contract was awarded to AA Publications for the publication of the two volumes of the handbook. *Solar Energy and Housing Design* was published in 1994 and continues to be used widely by students and practising architects in many countries.



- 1992-95 Funding was obtained from the European Commission for a series of projects that were undertaken in collaboration with teams from several other countries. Publications produced included twelve booklets on Building Science and Environment-Conscious Design under an EC Tempus project; a series of books and posters on the Design of Educational Buildings produced under EC Solinfo in 1995; and a two-volume manual on passive cooling produced in 1995 under EC Joule programme.



- 1995            The AA became an Open University Accredited Institution and the postgraduate Diploma in Energy Studies was validated for the Master of Art (MA) in Environment & Energy Studies.
  
- 1995-97        Two open symposia that were organised by Bill Dunster and Simos Yannas on the theme of Sustainability in Architecture in 1996 and 1997 attracted large participation from students and invited architects and engineers.
  
- 2001            *Climate Responsive Architecture* edited by Arvind Krishan, Nick Baker, S V Szokolay and Simos Yannas was published in 2001 in New Delhi by Tata McGraw Hill. An updated version of the book was published in 2014.
  
- 2003-07        Collaboration with AA Intermediate Unit 4 led to the construction of a structure for a village school in Ghana in January 2003. In the following year the AA E+E Masters group designed and fabricated a movable structure that was erected for testing in Oia, on the Aegean island of Santorini. In 2005 another structure, the Heliotropic Bench, was fabricated at Hooke Park and tested on Santorini. In February 2007 a third structure was fabricated for testing on the campus of the American University of Sharjah, UAE.



2004 & 2009 *Em Busca de uma Arquitetura Sustentavel para os Tropicos* (Towards a Sustainable Architecture for the Tropics) by Oscar Corbella and Simos Yannas was published in Rio de Janeiro by Editora Revan; a second edition with Spanish and English introductions was published in 2009.

2004-08 The Eden Scholarship, sponsored by Grimshaw Architects, Anthony Hunt Associates, Arup, David Langdon & Everest and the Eden Project Ltd, was awarded to Joy-Anne Fleming in 2004-05 (MA 2005), Giles Bruce in 2005-06 (MArch 2007) and Anya Thomas in 2006-07 (MArch 2009).



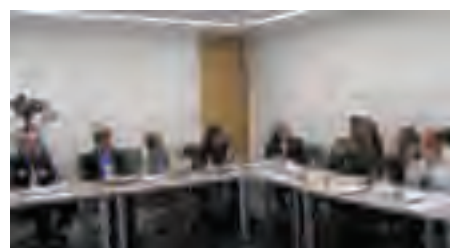
2005 On the occasion of Simos Yannas' visit to Lisbon for lectures at the Technical University the architectural journal *Arquitectura e Vida* published a lengthy interview in its June 2005 issue illustrated with recent AA E+E projects. Collaboration with UIA Architecture & Renewable Energy Sources Group led to a Symposium at the AA and presentations at the UIA Congress in Istanbul in July 2005 with exhibitions of student work.

2005- From October 2005, the 12-month Master of Science (MSc) and 16-month Master of Architecture (MArch) in Sustainable Environmental Design replace the Master of Art (MA) in Environment & Energy Studies following the programme's revalidation.

2006 *Roof Cooling Techniques—a design handbook* by Simos Yannas, Evyatar Erell and Jose-Luis Molina was published by Earthscan and shortlisted for the RIBA Book Award for Architecture. The publication of the book and its accompanying simulation software is the culmination of a two-stage European research project with the participation of teams from several countries.

2007 The first MArch candidates in Sustainable Environmental Design gave their final presentations on the 24<sup>th</sup> January 2007. A major retrospective exhibition of AA E+E projects of the last five years opened the same evening in the Arts Pavilion at Mile End Park in East London.

2007 The year's study trip to the Gulf Region included seminars and symposia in several cities followed by the undertaking of a series of projects that were published in January 2008 in a Special Issue of the *2A Architecture & Art Magazine*. The work was presented at Harvard University's Centre for Middle Eastern Studies. A structure designed at Hooke Park by the 2006-07 Masters students was tested on the site of the American University of Sharjah, UAE.



2008-09 Some twenty of the programme's recent students presented papers based on their MSc and MArch dissertation projects at the PLEA 2008 Conference in Dublin and the PLEA 2009 Conference in Quebec where a large exhibition of the programme's Term 1 Building Studies was also held. A number of exhibits were also shown at the Ecobuild exhibition in London in early March 2009. Articles were contributed to several books.



Students preparing to present their projects at PLEA 2009 (left) and (right) MArch presentations at AA Lecture Hall.



(above) SED team reconstructs Heliotropic Bench for display at Ecobuild in London, March 2009.  
(below) SED students posing during study trip to Madrid in April 2010



2009-12 AA SED took part in a three-year collaborative international project "Environmental Design in University Curricula and Architectural Training in Europe" (EDUCATE) sponsored by the European Commission with six other Schools of Architecture.

2011-12 Study trips to Barcelona and Madrid and exhibition of work at PLEA 2011 in Belgium including several oral presentations of student papers, and at the UIA Congress in Tokyo in September 2011. Publications in books and conference proceedings.

2011-12 Symposium on Ecological Design Research held at the AA (above left) with speakers from among the authors of a special issue of *AD Architectural Design*.

2013-14 SED Team wins OpenSource design marathon in Milan, May 2013 (below left). Publication of "Lessons from Vernacular Architecture" (below right).



2013-14 *Projects in India* an exhibition at the PLEA 2014 Conference in Ahmedabad, India (below) of Dissertation Projects by twelve of the programme's Indian students illustrating a wide range of urban contexts, building programmes and climatic conditions including both MSc and MArch Dissertations.





Term 4 Dissertation seminar July 2015



2014-15 SED display at the AA end of year exhibition July 2015 (above). Andrea Rossi and Pierluigi Turco win the PLEA 2015 Best Project Award in Bologna for their MArch Dissertation Project for a Migrants Centre in Lampedusa (below). Over a dozen other papers presented by SED staff and students at the same conference.





2015-16 SED team wins Labgrade Design Competition for the refurbishment and extension of a hotel in North Italy held in Milan in May 2016. Juan Montoliu and Jorge Rodriguez win Best Paper Award at the PLEA 2016 Conference held 9-11 July 2016 in Los Angeles. Ten other papers were presented by SED students and recent graduates at PLEA 2016 (see section 8.2 for list of papers).

2016-17 Collaboration with London architectural and engineering practices continued, initially in the Term 1 Building Studies and later through project reviews and presentations of SED projects to the practices.

In Term 3, project presentations by London-based SED graduates were followed by roundtable discussions with current SED students exploring the relationship between research and practice in relation to current and future prospects of sustainable environmental design (photo above). SED graduates included Meital Ben Dayan SED MSc 2012, Kimmy El'Dash SED MArch 2015. Ronak Gawarwala SED MArch 2013, Natasa Gravani SED MSc 2013, Mina Hasman SED MArch 2012, Annie Laurie SED MArch 2015, Maria Lumbreras SED MSc 2014, Jeewon Paek SED MArch 2011, Malgorzata Tomczuk SED MSc 2016, Olga Tsagkalidou SED MSc 2015 and Vera Sarioglu SED MSc 2013.

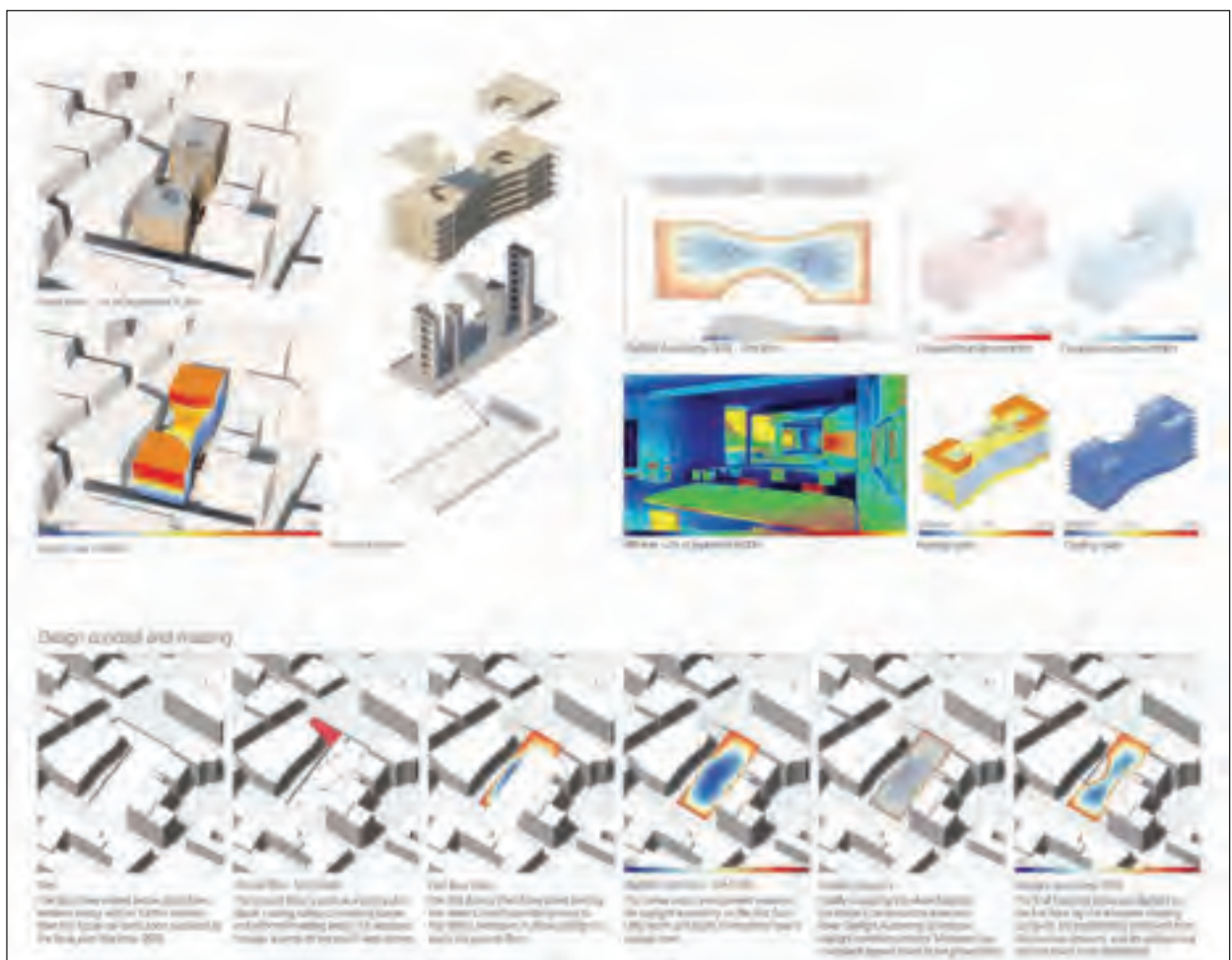
In May 2017 the SED programme was revalidated as part of the 5-year review of postgraduate Masters programmes. The Revalidation Panel commended AA SED for its coherence, cultivation of research methods and comprehensiveness of its documented archive of programme resources and outputs.

In July 2017 some 14 papers were presented by SED graduates at the PLEA 2017 conference in Edinburgh in (see section 8.2 for list of papers based on SED MSc and MArch dissertation projects).





SED completed MSc 2016 and MArch 2017 Dissertations on display at AA end of year exhibition 2017. Graduation Day June 2017.



From Rafael Alonso Candau MArch Dissertation Project 2017 *Whole Life Carbon in Office Building Design in London*

### 2.3 MSc + MArch Sustainable Environmental Design Research Agenda

In 2017-18 AA SED will be embarking on its thirteenth cycle of the MSc and MArch in Sustainable Environmental Design. The taught programme will continue to develop its research agenda on *Refurbishing the City*. Student projects will further develop the vocabulary of sustainable environmental design for a wide range of climates, building types and urban environments. Since the first cycle of the MSc / MArch in 2005-06, over 500 research projects have been completed by the programme's students for sites in some 60 countries and 150 cities in climatic regions and urban contexts spread between latitude 0° and 60° North and South and in longitudes from 125° West to 140° East. AA SED cohorts have achieved outstanding academic results in the programme's latest completed MSc and MArch cycles of 2015-16 and 2015-17 respectively. In the 2016-17 academic year the joint MSc / MArch teams achieved better marks than the previous year on their Term 1 Building Studies with three of these teams invited to present their projects to the collaborating design offices and occupants involved. These included on site measurements and computational studies of two AHMM Architects' buildings at William Street Quarter, studies of Architype Architects' recently completed Mandeville and Horsenden Schools, and comparison of one of Walter Segal's original self-built dwellings with one recently refurbished. Term 2 design research focused on alternative design proposals for a site near Peckham Library in South London. Dissertation work is well advanced with 15 of the students who had joined the programme in September 2016 continuing into 2017-18 for the last stage of the MArch.

Some 70 papers co-authored by staff and students were published in journals and conference proceedings in the five years 2012-17 since the programme's last revalidation. A book is in preparation with support from an RIBA Research Award on environmental studies of selected London buildings undertaken as part of Term 1 course work. Publication of research papers based on MSc and MArch Dissertation projects will continue into 2017-18.

In 2017-18, *Refurbishing the City*, a continuing SED research agenda, will start a new chapter of collective design research in collaboration with London architectural and engineering practices. This will involve environmental performance studies of selected London buildings in Term 1, followed in Term 2 by design research based on the findings of these building studies. In Terms 3 and 4, MSc and MArch students will embark on individual dissertation projects that will extend into many other cities and climatic regions. Recent SED dissertation projects have addressed warm climates, passive environmental features, outdoor living and occupant-centred adaptive strategies encompassing home, work, learning and mixed-use environments.

#### Refurbishing the City Projects

##### *London Building Studies, Term 1*

With London as laboratory and project teams that combine MSc and MArch students, on-site observations and environmental measurements in selected buildings will be followed by use of advanced computational tools to investigate the relationship between building, climate and occupants highlighting the role of empirical and analytical investigations in informing design research and architectural practice.

##### *Design Research, Term 2*

The insights gained from the Term 1 building studies will provide the starting points for design research applying the methodology and computational tools of adaptive architecturing to address key issues relating to urban morphology, climate change, building and lifestyle trends and technological developments that shape the future of the city.

##### *MSc & MArch Dissertation Research, Terms 3 & 4*

Individual research for the MSc and MArch dissertation projects provides the opportunity to explore design options and computational studies across climatic regions, building types, design specifications and operational conditions addressing social and environmental research agendas of direct interest to their home context.

### 3 PROGRAMME SPECIFICATION : AIMS AND LEARNING OUTCOMES

Common aims of the MSc and MArch in Sustainable Environmental Design are to provide objective criteria for conceiving, defining, designing and assessing the environmental functions, attributes and performance of buildings and outdoor spaces. Taught courses, project work and research toward dissertations aim at equipping participants with cognitive, experiential, analytic and generative skills enabling them to engage in interdisciplinary design research and practice. The main areas of application of the knowledge and skills provided by the programme are urban environments and individual buildings, new or existing, in different climatic and geographic contexts. Project work explores the relationship between form and performance, especially the dynamic and adaptive potential of the building envelope in different climatic regions and for different building types. Learning outcomes are listed below. These are listed under groupings relating respectively to the acquisition of knowledge and understanding, to specific skills and transferable skills. Most are common to both the MSc and MArch options. Those specific to MSc or MArch are identified in the listings below.

#### 3.1 Knowledge and understanding

On successful completion, MArch / MSc in Sustainable Environmental Design participants will be able to:

- A1 demonstrate knowledge and understanding of key concepts of sustainable environmental design
- A2 demonstrate familiarity with building energy modelling and simulation tools and understanding of their applicability to inform design decisions
- A3 identify and characterise significant architectural typologies and built precedents
- A4 demonstrate understanding of the environmental attributes of historic and contemporary buildings
- A5 take a critical position in relation to wider issues and objectives of sustainability
- A6 take a critical position in relation to parallel contemporary tendencies in architecture and urbanism.

#### 3.2 Subject specific skills and attributes

On successful completion, MArch / MSc in Sustainable Environmental Design participants will be able to:

- B1 undertake critical reviews and appraisals of key technical and theoretical aspects of environmental sustainability in architecture and urban design
- B2 plan, implement, process and interpret fieldwork involving observations, surveys and measurements in and around buildings and outdoor spaces using specialist instruments and data acquisition techniques.
- B3 use specialised analytic tools and performance assessment techniques to inform design decisions and assess the environmental impact and performance of buildings and urban spaces
- B4 identify, compare and assess environmental attributes of buildings using on-site observations and measurements, as well as comparative performance data and calculated results
- B5 assess the potential offered by new materials and technologies
- B6 (MSc) formulate guidelines and proposals for new or existing buildings taking account of context, climate, and occupancy
- B7 (MArch) develop and test original design applications.

#### 3.3 Transferable skills and attributes

On successful completion, MArch / MSc Sustainable Environmental Design participants will be able to:

- C1 use appropriate analytical tools and other research techniques to formulate and test research hypotheses
- C2 engage in environmental research as a member of interdisciplinary international team.
- C3 use a variety of media to communicate effectively with clients and colleagues.
- C4 continue expanding their knowledge using the skills acquired on the course.

### 3.4 Curriculum Map

The Curriculum Map below shows how outcomes are deployed across the study programme. It relates the delivery and assessment of the learning outcomes listed above to the different inputs and outputs of the programme. The tabulation indicates which study units assume responsibility for delivering (shaded) and assessing (X) particular learning outcomes. To simplify the tabulation, lecture series have been grouped under three broad categories relating respectively to principles and theories of sustainable environmental design; practice and built examples; and analytic tools. Each of these is identified in terms of the learning outcomes delivered. Project workshops and individual and group tutorials are shown as relating mainly to the assessment of learning outcomes though in practice they also contribute to the delivery of the outcomes. Assessed work in the form of projects, essays, technical studies and dissertations is listed as representing both delivery and assessment of learning outcomes.

Curriculum Map	A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
	<i>knowledge and understanding</i>																
	of key concepts of sustainable environmental design																
	of building energy modelling and simulation tools and applicability to design																
	of significant built precedents																
	of environmental attributes of historic and contemporary buildings																
	of wider issues of environmental sustainability																
	critical position in relation to tendencies in architecture and urbanism.																
	<i>specific skills and attributes</i>																
	reviews of technical and theoretical aspects of environmental sustainability																
	plan, implement, process and interpret fieldwork in buildings and outdoors																
	use of analytic tools and performance assessment techniques in design																
	assess environmental attributes of historical and contemporary buildings																
	assess the potential offered by new materials and technologies																
	guidelines for buildings taking account of climate, site and occupancy																
	(MArch) develop and test original design applications.																
	<i>transferable skills and attributes</i>																
	use analytic tools and research techniques to test hypotheses																
	engage in interdisciplinary environmental research																
	use a variety of media to communicate effectively																
	continue expanding their knowledge using the skills acquired.																
<i>Terms 1-3 Lecture Series</i>																	
PRINCIPLES & THEORIES																	
PRACTICE & EXAMPLES																	
TOOLS & TECHNIQUES																	
<i>Terms 1-4 Workshops &amp; Tutorials</i>																	
TOOLS WORKSHOPS		X							X					X			
DESIGN WORKSHOPS & TUTORIALS	X	X	X	X			X	X	X	X	X	X	X	X	X	X	
DISSERTATION SEMINARS & TUTORIALS	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X
<i>All Assessed Work</i>																	
PROJECT I	X	X	X	X			X	X	X	X	X	X		X	X	X	X
ESSAYS	X			X	X		X			X	X			X			X
TECHNICAL STUDIES		X					X	X	X	X	X	X		X		X	X
PROJECT II	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X
MArch DISSERTATION	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X
MSc DISSERTATION	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X

## 4 TEACHING AND LEARNING STRATEGIES

The programme's Lecture Courses are complementary and practice-oriented. In conjunction with the weekly workshops, seminars and tutorials they provide the knowledge, analytic tools and guidance needed for undertaking real-life project work. On the MSc / MArch Sustainable Environmental Design, projects are cross-course vehicles focused on different aspects of the design, making, experience and assessment of architectural spaces indoors and outdoors. In Terms 1 and 2, project work is undertaken in teams of four that combine MSc and MArch students. Dissertation research is started collaboratively under thematic groupings and continued individually so that students can contextualise their projects for the climatic and other specificities of their chosen geographic region and urban environments.

### 4.1 Lecture Courses

Attendance of all the lectures and other weekly events offered by the programme is compulsory for Phase I students registered for the MSc / MArch in Sustainable Environmental Design. In Term 1 the lecture input provides a common cognitive background and the skills and tools needed for project work. In addition, lectures address current issues and professional concerns thus providing a critical overview of the research directions pursued by the programme and by the field as a whole. Term 1 lectures are given by the programme's regular staff so as to ensure continuity and direct support to project work. In Terms 2 and 3 many of the lectures are given by invited researchers and designers. This provides diversity of opinion, variety of input, and links with research and practice outside the programme. The structure and overall contents of the taught programme are reviewed annually as well as at the beginning and end of each term. Throughout the year lecture topics are selected so as to feed directly into each term's project agendas. Lectures are stored in electronic format and are available to students for further study after their delivery. Section 7 of this Guide introduces the programme's core lecture series and section 8 provides Reading Lists organised according to key topics of interest. Owing to the vast amount of published information in the various fields of sustainability, the reading lists given here are focused on items that have proven to be of direct relevance to the programme's areas and project work.

### 4.2 Seminars & Workshops

The *Research Seminar* is a weekly forum on information sources, research methods, report writing and visual presentation. The *Modelling & Simulation Workshop* provides hands-on training in the use of a wide range of specialist tools and software; it aims to develop the empirical and analytical skills required for field studies and design research.

### 4.3 Study Trips & Special Events

Study trips involve visits to buildings of interest, meetings with designers and researchers and taking part in international conferences and other events. In the early weeks of the year visits will be for fieldwork within London. A study trip will take place during Term 2 or 3.

### 4.4 Team Projects

On the MSc / MArch Sustainable Environmental Design, projects are the vehicles for integrating the inputs of all of the taught programme's lectures and workshops. Projects are based on realistic briefs and sites closely related to the kind of work the programme's graduates will be expected to undertake in practice after graduation. Project work is supported by weekly tutorials and monitored by regular presentations and review sessions. Each team project accounts for a total of 35 credit units (a nominal 350 hours of student effort including attendance of related courses) per student including Technical Studies. Assessment is discussed in section 6. Project learning outcomes and assessment criteria are discussed in section 9 of this Guide and the organisation and submission of project reports is discussed in section 11.

### 4.5 Research Papers

Research papers are expected to provide a critical overview of published literature on selected topics relating to the programme's lecture courses and project briefs. Choice of topic, literature research and writing of the research papers are supported by regular individual tutorials. Research papers should be targeted at between 3,000 and 4,000 words. Each paper represents 10 credit units (a nominal 100 hours of student effort including attendance of related courses). Assessment is discussed in section 6. Learning outcomes and assessment criteria are listed in section 9 of this Guide and the organisation and submission of research papers is discussed in section 11.

#### 4.6 Technical Studies

Technical studies may involve fieldwork and/or use of computational tools introduced by the taught programme. They are undertaken as part of project work and shared between project team members. Support is in the form of weekly tutorials and regular presentations of research results. A Technical Studies submission represents 10 credit units (a nominal 100 hours of student effort including attendance of related courses). Assessment is discussed in section 6. Learning outcomes and assessment criteria and guidelines are listed in section 9 of this Guide and the organisation and submission of reports is discussed in section 11.

#### 4.7 Dissertation Projects

The Dissertation Project represents 90 credit units, 50% of the total credit for the MSc and MArch in Sustainable Environmental Design. Dissertation Projects are vehicles for undertaking a significant piece of research that reflects the programme's areas of specialisation and students' personal interests, backgrounds, special skills and plans for the future. The MArch dissertation research should lead to a *design application* for a specific site and building programme. MSc dissertations deal with the *design applicability* of their research outcomes and as such have a broader geographic, climatic and typological scope than the MArch. A list of all completed MSc and MArch Dissertation Projects is included in the Appendix highlighting differences in the respective research agendas. Dissertation topics are decided by the end of Term 2 and confirmed with the submission of written outlines aimed at providing evidence that the proposed topic is within the student's grasp, capabilities and workplan. A brief first stage of dissertation research lasting a couple of weeks at the beginning of Term 3 may be undertaken collaboratively. Collaboration at this early stage can facilitate the collection and study of relevant literature and built precedents. Supervision of dissertation work is through weekly individual tutorials. There are progress presentations attended by the programme's teaching staff and external reviewers. Learning outcomes and assessment criteria are discussed in sections 6 and 9 of this Guide and the choice of dissertation topics and the planning, development and submission requirements of Dissertation Projects are discussed in detail in section 10. A list of completed and continuing Dissertation Projects is included in the Appendix.

#### 4.8 Tutorials

The overall direction and progress of student work within the Masters programme, and the development of projects and other course work are monitored and supported by weekly individual and/or team tutorials. Staff are available for tutorials by appointment and/or at pre-arranged times.

#### 4.9 Project Presentations & Reviews

Project presentations by individual students and project teams are regular events aimed at monitoring progress as well as developing students' oral and visual presentation skills.

#### 4.10 Student Feedback

Student feedback to the taught programme's structure, content, delivery and teaching methods is sought throughout the year. Such feedback is important in helping to plan forthcoming events of following terms, as well as for improvement and updating of the contents of the programme from year to year. A written questionnaire is submitted by outgoing students at the end of the course.

### 5 RESOURCES

General facilities that are available to all students will be introduced during Introduction Week before the beginning of the academic year. These include the School's Library, Computer Lab, Prototyping Labs and Materials Workshop. The AA Student Handbook provides detailed information on all aspects of the AA School's organisation, resources and facilities, and its academic and administrative policies. The resources and facilities listed in this section are those specific to students on the MSc / MArch in Sustainable Environmental Design.

#### 5.1 Reading Lists & Reference Material

Material that needs to be available to students at all times is mostly provided as a download from the programme's folder on the School's File Server (\\jupiter\Unit-Space\EE). To have access to the EE Folder students must first register with the AA Computer Lab. The EE folder contains a comprehensive collection of dissertations and team projects from previous years in pdf format. Printed copies of all team

projects and dissertations are kept in the Programme's Offices. Lectures, software, project briefs and all other material required on a daily basis for the course are also stored in this folder for access by the programme's current students. The AA Library ([www.aaschool.ac.uk/library](http://www.aaschool.ac.uk/library)) stocks all of the books listed on the programme's Reading Lists (see Section 8 of this Guide). A selection of material from these Lists is also held on a separate shelf at the Library for easy access. For scientific papers the AA Library provides access to the *Science Direct* site from where papers published in journals such as *Energy and Buildings* can be downloaded for study. The Open University provides library resources that can be accessed from: [www.open.ac.uk/library/libpartnerships](http://www.open.ac.uk/library/libpartnerships).

## 5.2 Computing

Students are expected to own a laptop computer running Windows. Ownership of a fast inkjet printer is strongly recommended. Software introduced by the taught programme for use on project work will be made available as needed. Students are required to observe the Studio Rules of Conduct that apply to the use of software within and outside the School.

## 5.3 Communications

Students on the programme are required to confirm their email addresses on arrival and to check their emails on a daily basis for updates on regular events, tutorials and reviews. Most spaces within the School provide wireless Internet access.

## 5.4 Scientific Instruments

The programme owns a wide range of portable scientific instruments for taking measurements of environmental variables on field studies as well as in the SED Studio. Instructions on how to use the instruments and how to record, process and present the results are given by the Term 1 "Tools" course and accompanying workshops. To borrow instruments students must place a formal request with the programme staff responsible for their keep. Instruments are available on a first come first served basis according to students' research requirements. Especially early notice is needed when they are to be taken abroad.

## 5.5 Modelmaking & Prototyping

The AA School has in-house facilities for fabrication and model making. The large workshops at Hooke Park in Dorset offer opportunities for producing experimental structures such as those fabricated by the programme's students in previous years. Students wishing to use the AA School's Bedford Square workshops must attend introductory training sessions on the first week of the academic year.

## 5.6 Studio

The programme's studios are open from early in the morning till late evening on weekdays and weekends. All of the programme's specialist software can be run from the studio and the programme's scientific instruments are kept there.

# 6 ASSESSMENT

All submissions are assessed and marked by two members of the programme's teaching staff. Submitted work is also reviewed by the External Examiners whose role is to ensure fair and objective marking and the maintenance of high academic standards. All marks and assessments are reviewed by an Examination Board composed of the programme's teaching staff and External Examiners. The Examination Board has the responsibility for the final marking and for making recommendations on the award of distinctions or the need for resubmission. Notification of results is given to students by the Registrar's Office through the Graduate School's Administrative Coordinator.

Submissions for the MSc / MArch in Sustainable Environmental Design are assessed on :

1. Knowledge and understanding of the principles introduced by the taught programme
2. Clarity of the approach followed in the investigation of research questions and hypotheses
3. Application of critical faculties and observational skills
4. Use of fieldwork and analytical tools to test hypotheses and find new data
5. Ability for comparative analysis and interpretation of results
6. Application of new knowledge and tools in design research and practice
7. Demonstration of team effort, innovative thinking and creativity

8. Clear and concise writing and presentation of project results
9. Referencing of sources of information using agreed conventions
10. Adherence to project briefs and other preset requirements

The marking of projects, essays and dissertations is on a scale of 0-100% with pass mark at 50% and grades as shown below. These are common to all Masters Programmes at the AA School.

Mark	Grade	Performance
70 and above	A	Excellent Pass / Distinction
65-69	B+	High Pass
60-64	B	Good Pass
57-59	C+	Satisfactory Pass
54-56	C	Adequate Pass
50-53	D	Low Pass
49 and below	F	Fail

The marks awarded by the internal assessors are averaged to establish an agreed mark for each submitted piece of work. An average mark is then calculated for the course work as a whole using the credit rating of each team project and research paper. Section 9 lists the credit ratings of each of these. To qualify for the masters award students must attain the 50% threshold mark on both the course work and their Dissertation Project. An overall mark is then calculated with the course work representing half of the total credits and the Dissertation accounting for the other half. The MSc / MArch is awarded "with Distinction" when the combined weighted average of the course work and dissertation marks is 70% or higher.

Students who fail to attain a pass mark on a team project or research paper will be required to resubmit the failed item and pass to be eligible to continue on the course. Students who fail to attain an overall mark of 50% on their dissertation will be allowed to resubmit once for the Examination Board of the following academic year. Failure to resubmit or to achieve a pass mark on resubmission will lead to disqualification from the degree.

Non-submission or late submission (7 or more days after the deadline) of team projects, research papers or dissertations without accepted mitigating circumstances is marked as Fail. In those cases, resubmission will be subjected to mark capping at 50%. Any pieces of work submitted up to seven days after the deadline without accepted mitigating circumstances will have 10 marks deducted for each calendar day of lateness incurred, down to the 50% mark. Deferment of a submission may be considered in case of illness or other exceptional circumstances. In such cases the deferred submission is classed as a first submission

The AA School requires all students to sign a declaration form confirming that the contents of each of their submissions is their own work and that reference to the work of others is duly acknowledged following agreed conventions discussed in Section 10 of this Guide. Failure to provide such acknowledgment, whether deliberate or unconscious, constitutes plagiarism. Plagiarism is a most serious academic offence that can lead to disqualification from the degree.

For more detailed information on the above see AA Graduate School Academic Regulations and the AA Student Handbook.

## 7 PROGRAMME STRUCTURE & CORE COURSES

The taught programme for the MSc and MArch in Sustainable Environmental Design combines lecture series, seminars, cross-course team projects, fieldwork, software workshops, and other activities including building visits and study trips. These formal events and activities provide the conceptual, empirical and analytical tools and information needed to address environmental issues in design research and architectural design. Projects provide the main vehicle for student work. Project work is closely supervised by the programme's teaching staff in regular individual and group tutorials. Dissertation projects represent the largest component of student work. Topics for dissertation projects are decided half way through the programme's duration and the work is developed under close individual supervision.



Students are accepted on the programme either for the MSc or for the MArch. Switching degrees is only allowed under exceptional circumstances and then only to the shorter degree. Students with compelling reasons for such change should approach the programme director by the beginning of Term 2. They will be required to submit a written statement explaining how this may influence their dissertation work. In considering such applications the programme staff will take account of students' Term 1 course work results.

The taught programme is divided into four terms. Most of the lecture content is delivered in the first two terms (October to March inclusive) and is common to both MSc and MArch students. Over the same period, course work combines team projects, technical studies and individual research papers. Term 1 and 2 project teams combine MSc and MArch students. In Term 3 students embark on the research for their individual Dissertation Projects. MSc students work on their Dissertation projects non-stop through the summer for submission before the start of the next academic year. MArch students are expected to take a summer break returning to the School in Term 1 of the following academic year. Both MSc and MArch dissertation projects start with the formulation of research agendas derived from literature research and study of built precedents. Students then proceed with fieldwork and computational studies aimed at identifying potential for worthwhile improvements that serve the programme's stated objectives. MSc dissertations present their research outcomes by mapping and documenting their applicability across the range of geographic, climatic or programmatic situations encompassed by the students' chosen research agenda. The MArch dissertation research is expected to lead to a *design application* for a specific site and building programme of the students' choice.

Credits for course work and dissertation projects are given for each 10 hours of learning time. Learning time includes lectures, seminars, course reading, workshops and tutorials, as well as time spent on projects, essays and other assigned tasks. A total of 180 credits is required for the MSc / MArch in Sustainable Environmental Design representing 1800 learning hours over 45 weeks. Course work is assigned by academic term, but extends into the vacation periods. Credits are distributed between the four terms of the year as follows:

i.	Term 1	Project I & Research Paper 1	45 credits	25% of total credits
ii.	Term 2	Project II & Research Paper 2	45 credits	25% of total credits
iii.	Terms 3&4	Dissertation Project	90 credits	50% of total credits

For a detailed breakdown of credits and a listing of the respective aims, learning outcomes and assessment criteria for each item see section 9 of this Guide.

Summary outlines of the taught programme's lecture courses and seminars are given below. All weekly events and project work take place in the SED studio which is open seven days a week. Regular courses and Term 1 projects start on the second week of the academic year following two weeks of induction which include special events and introductory activities. The first week of induction is the AA School's Introduction Week for all new students. This includes introductions to the School's facilities and site visits around London. Information on Introduction Week events and activities will be provided at registration. The AA postgraduate programmes are introduced on Week 1 of the academic year. The SED programme's incoming MSc and MArch students will introduce themselves with short presentations on that week.

Definitive listings of the programme's weekly events are published in the weekly Events List available in printed form and online. Required and Recommended readings related to individual courses are listed in Section 8 of this Guide.

## Lecture Courses & Workshops

### *Sustainable City, Term 1*

This course reviews theories of urban sustainability and introduces the instruments and tools applied to its assessment. The effects that urban morphology can have on microclimate, energy consumption and climate change are illustrated with case studies of new and refurbished schemes in different urban contexts with scales ranging from the regional to that of the urban block.

*Adaptive Architecturing, Term 1*

Providing local solutions to global issues requires an understanding of what makes a *good* environment for its occupant and how this varies across climates, building types and individual preferences. How does architecture contribute to this and can it reclaim its historical role as a tool of sustainable environmental design? This course introduces a generative framework for an adaptive, culturally sensitive occupant-centred architecture aiming for a symbiotic relationship with the city.

*Environmental Simulation & Performance Assessment Tools, Terms 1 & 2*

This hands-on course runs in day-long weekly sessions that follow step-by-step the weekly tasks of the Term 1 and 2 team projects introducing the analytical procedures and computational tools that drive the SED research methodology. The course begins by introducing fieldwork techniques starting with indoor and outdoor visual observations and scientific measurements, followed by diagnostic interpretation, computer modelling of selected spaces, calibration of models with measurements, simulations of solar, thermal, airflow and daylighting processes, and assessment of results against targets and benchmarks. Completion of this process initiates the application of modelling and simulation to inform design and assess the environmental merits of architecture practice. A range of computational tools will be introduced over Terms 1 and 2. Their application will be explored initially through the team projects thus providing the essential expertise that is required for undertaking the MSc and MArch dissertation research in Terms 3 and 4.

*Environmental Design Primer, Terms 1 & 2*

This course introduces key areas of sustainable environmental design research and practice as these relate to architecture and urban design. Topics include urban climatology and the theories of environmental comfort; the physics and architecture of natural light, airflow and thermal processes; the ecology and environmental performance of materials; renewable energy technologies in the urban environment; and the science and art of measurement and performance assessment.

*Lessons from Practice, Term 2*

This course involves a number of architects, engineers and researchers invited to present recent projects that illustrate their philosophy practice and experience of sustainable environmental design. Individual presentations are followed by roundtable sessions providing a platform for discussing specific issues as well as the relationship between research and practice. The course includes building visits and study trips in the UK and abroad.

*Research Seminar, Terms 1–4*

In Terms 1 and 2 the seminar provides a regular forum for discussing the literature research and critical reading expected in support of the two individual research papers that will act as the foundations for dissertation projects undertaken in Terms 3 and 4. During the latter the seminar complements the weekly individual tutorials providing specific support on the contents and production of the dissertation.

**Studio Projects***London Building Studies, Term 1*

With London as laboratory and project teams that combine MSc and MArch students, on-site observations and environmental measurements in selected buildings will be followed by use of advanced computational tools to investigate the relationship between building, climate and occupants highlighting the role of empirical and analytical investigations in informing design research and architectural practice.

*Design Research, Term 2*

The insights gained from the Term 1 building studies will provide the starting points for design research applying the methodology and computational tools of adaptive architecturing to address key issues relating to urban morphology, climate change, building and lifestyle trends and technological developments that shape the future of the city.

*MSc & MArch Dissertation Research, Terms 3 & 4*

Individual research for the MSc and MArch dissertation projects provides the opportunity to explore design options and computational studies across climatic regions, building types, design specifications and operational conditions addressing social and environmental research agendas of direct interest to their home context.

## 8 READING LISTS & INTERNET SOURCES

### 8.1 Reading Lists & Information Sources

The published literature on the topics covered by the SED programme is vast and continues to grow rapidly. Random reading and uncritical internet surfing are strongly discouraged. The items listed here have been carefully selected to match the specific objectives and learning outcomes of the taught programme. They include recent books and papers as well as earlier publications that have stood the test of time. Items preceded by an ‡ are *Required Reading*. These must be sought and scrutinised carefully early in the year as they deal with material that is essential to the taught programme and SED project work. Items marked with an † are *Recommended Reading*. These contain important information and technical data that will be needed in the course and project work. Other items can be consulted in due course. For clarity and ease of use, the books and papers listed here have been grouped under the following thematic categories:

- Building Examples & Case Studies
- City microclimates, Design of Outdoor Spaces
- Comfort, Post-Occupancy Evaluation, Behavioural Studies
- Daylighting
- Environmental Design Principles
- Environmental Engineering
- Environmental Design Data & Assessment
- Materials & Construction
- Passive Heating & Cooling
- PLEA Conference Proceedings
- Sustainability Theories & Issues
- Ventilation

Books and papers that relate to more than one topic may appear more than once. The symbol < see also: > is used to cross-reference the thematic categories; it also highlights additional bibliographical sources. All of the publications listed here can be consulted at the AA Library in printed and/or electronic forms. Some of the *Required* and *Recommended* items can be downloaded in pdf format from the programme's EE folder which is on the AA School's File Server. These items are identified below with [FS]. Access to the AA File Server requires registration with the AA Computer Lab at the beginning of the academic year. Items available on CD or memory stick are identified below with [CD].

The AA Library provides online access to numerous resources including scientific and architectural journals and technical guides with relevant information for the SED course. Students must follow the induction events organised by the Library. The AA Library can also order copies of papers for students through the British Library. Open University library resources are also available to AA students and can be accessed at: [www.open.ac.uk/library/libpartnerships](http://www.open.ac.uk/library/libpartnerships). Advice on reading and discussion of selected readings will be a regular feature of the weekly Research Seminar in Term 1. Further reading material will be introduced as the year progresses.

#### **Built Examples, Case Studies**

- † Baker, N.V. (2009). **A Handbook of Sustainable Refurbishment: Non-Domestic Buildings**. Earthscan.
- Baird, G. (2010). **Sustainable Buildings in Practice- what the users think**. Routledge.
- BIG (2015). **Hot to Cold - an odyssey of architectural adaptation**. Taschen.
- Clegg, P. and D. Hawkes (2015). **Learning from Schools**. Artifice Books on architecture.
- Ford, B., R. Schiano-Phan, E. Francis (Eds 2010). **The Architecture & Engineering of Draught Cooling**. PHDC Press.
- † Guzowski, M. (2010). **Towards Zero-energy Architecture: new solar design**. Lawrence King Publishing.
- Gonçalves, J.C. (2010). **The Environmental Performance of Tall Buildings**. Earthscan.
- Hastings, R. and M. Wall (Eds. 2007). **Sustainable Solar Housing. Exemplary Buildings and Technologies**. Earthscan. [FS]
- Hawkes, D. (2015). **The Circadian House**. Housing Learning & Improvement Network. Case Study 112.
- † Hawkes, D. (2012). **Architecture and Climate**. An environmental history of British architecture 1600-2000. Routledge.

- † Hawkes, D. (1996). **The Environmental Tradition**. E&FS Spon, London.
- † Hawkes, D. (2007). **The Environmental Imagination**. Routledge.
- Morphogenesis (2016). **The India Perspective**. The Master Architect Series. Images Publishing.
- Yannas, S. (2009). *What Can Buildings Tell Us, What Can We Tell Back*. **Proc. PLEA 2009**, Quebec, pp472-477.
- † Weber, W. and S. Yannas (Eds. 2013). **Lessons from Vernacular Architecture**. Earthscan/Routledge.
- WOHA (2016). **Garden City Mega City**. Rethinking cities for the age of global warming. Pesaro Publishing.
- † Yannas, S. (2008). *Challenging the Supremacy of Airconditioning*. **2A Architecture & Art**, Issue 7, pp20-43, Dubai. [FS]
- Yannas, S. (1994). **Solar Energy and Housing Design**. *Volume 2: Examples*. Architectural Association Publications.
- Yannas, S. (1995). **Design of Educational Buildings**. Book 2: Examples. Environment & Energy Studies Programme, AA Graduate School, London.

☞ see also: AA E+E SED Building Studies Projects from previous years (in SED Studio, Office and on File Server).

☞ see also: Architects Journal Building Library [ajbuildingslibrary.co.uk](http://ajbuildingslibrary.co.uk)

☞ see also: *Architectural Review*, *The Plan*, *Detail* and other architectural periodicals

☞ see also: PROBE (Post-occupancy Review of Buildings and their Engineering) case studies at: [www.usablebuildings.co.uk/](http://www.usablebuildings.co.uk/)

### **City Microclimates, Design of Outdoor Spaces**

- Akbari, H. (2007). *Opportunities for saving energy and improving air quality in Urban Heat Islands*. In **Advances in Passive Cooling**, pp30-93, Earthscan.
- † Chatzidimitriou, A. and S. Yannas (2017). *Street Canyon Design and Improvement Potential for Urban Open Spaces*-influence of canyon aspect ratio and orientation on microclimate and outdoor comfort. In **Sustainable Cities and Society** Vol 33 pp85-101. Elsevier.
- † Chatzidimitriou, A. and S. Yannas (2016). *Microclimate Design for open spaces: ranking urban design effects on pedestrian thermal comfort in summer*. In **Sustainable Cities and Society** 26 pp27-47. Elsevier.
- † Chatzidimitriou, A. and S. Yannas (2015). *Microclimate Development in open urban spaces: the influence of form and materials*. **Energy and Buildings** 108 pp156-174. Elsevier.
- Douglas, I. (1983) **The Urban Environment**. Hodder Arnold.
- ‡ Erell, E., D. Pearlmutter and T.J. Williamson (2010). **Urban Microclimate: designing the spaces between buildings**. Earthscan.
- † Gartland, L. (2008). **Heat Islands**. Earthscan.
- † Gehl, J. and B. Svarre (2013) **How to Study Public Life**. Island Press
- Grimmond, C.S.B.. (2011). *Climate of cities*. In Douglas, I. Goode, D. Houck, M. & Wang, R. (2011) **The Routledge Handbook of Urban Ecology**. Routledge.
- Gething, B. (2010). **Design for Future Climate**. Technology Strategy Board [FS].
- Givoni, B. (1998). **Climate Considerations in Building and Urban Design**. Van Nostrand Reinhold.
- † Littlefair, P.J. (2011) **Site Layout Planning for Daylight and Sunlight. A Guide to Good Practice**. BRE Press.
- † Littlefair, P. (2000). **Environmental Site Layout Planning**. Building Research Establishment, BR 380.
- Lenzholzer, S. (2015). **Weather in the City**. How design shapes the urban climate. nai010 publishers.
- March, L. (1967) *Elementary Models of Built Forms*. In Martin, L. & March, L. (1972) **Urban Space and Structures**. Cambridge University Press.
- Ng, E. (Ed. 2009). **Designing High Density Cities**. Earthscan.
- Oke, T.R. (1987). **Boundary Layer Climates**. Chapters 7 & 8 only. Methuen & Co., London.
- † Oke, T.R. (2011). *Urban Heat Islands*. In Douglas, I. Goode, D. Houck, M. & Wang, R. (2011) **The Routledge Handbook of Urban Ecology**. Routledge Handbooks
- Pedersen, P.B. (Ed. 2009). **Sustainable Compact City**. 2nd edition. Arkitekt skolens Forlag.
- † Rodríguez-Álvarez, J. (2014) **Planning Cities for the Post-Carbon Age. A Metabolic Analysis of the Urban Form**. PhD thesis. UDC. <[ruc.udc.es/dspace/handle/2183/11927](http://ruc.udc.es/dspace/handle/2183/11927)>
- Salat, S. (2011) **Cities and Forms: On Sustainable Urbanism**. Hermann.
- Smith, P.F. (2006). **Architecture in a Climate of Change**. Architectural Press.
- Thomas, R. (Ed. 2008). **Sustainable Urban Design**. An environmental approach. Taylor & Francis.

Yannas, S. with O.D. Corbella and V.N. Corner (2001). *Outdoor Spaces and Urban Design: case studies of two plazas in Rio de Janeiro*. **Proc. PLEA 2001**, Florianopolis. [FS]

Yannas, S. (2000) *Toward More Sustainable Cities*. **Solar Energy Journal** Vol. 70 No. 3 pp281-294, Elsevier Science Limited.

☞ see also <http://www.metoffice.gov.uk/climatechange/>

### **Comfort, Post-Occupancy Evaluation, Behaviour Studies**

Auliciems, A. and S. Szokolay (1997). **Thermal Comfort**. PLEA Note 3. PLEA International / University of Queensland. [FS]

Baker N V. (2001). *We are really outdoor animals*. Moving comfort standards in the 21<sup>st</sup> century Conf.

† Baker N.V. (2007). *Adaptive thermal comfort standards for building refurbishment*. Revival Technical Monograph 2. [FS] see also: [www.revival-eu.net](http://www.revival-eu.net)

† Chappells, H. and E. Shove (2004). *Comfort : a review of philosophies and paradigms*. Future Comforts Project, UK ESRC programme. [FS]

Chen, Y-C and A Matzarakis (2017). *Modified Physiologically Equivalent Temperature*. In *Theoretical and Applied Climatology*. Springer.

CIBSE (2017). **Design Methodology for the Assessment of Overheating Risk in Homes**. TM59 Chartered Institution of Building Services Engineers, London. [FS]

CIBSE (2013). **Limits of Thermal Comfort**. Avoiding Overheating in European Buildings. TM52 Chartered Institution of Building Services Engineers, London. [FS]

† CIBSE (2006). **Comfort**. CIBSE Knowledge Series KS 6. Chartered Institution of Building Services Engineers, London. [FS]

† CIBSE (2006). *Environmental criteria for design*. Chapter 1 in **CIBSE Guide A**. Chartered Institution of Building Services Engineers, London. [FS]

Cole, R.J., Z. Brown and S. McKay (2010). *Building Human Agency: a timely manifesto*. Building Research & Information, 38(3) pp339-350, Routledge. [FS]

Mahdavi, A. and C. Proglhof (2008). *Observation-based models of user control actions in buildings*. Proc. PLEA 2008, Dublin.

‡ Nicol, J.F., M. Humphreys, S. Roaf (2012). **Adaptive Thermal Comfort**. Routledge.

Nicol, J.F. (Ed. 2011). **Adaptive Comfort**. Special Issue of *Building Research Information Journal*, Vol. 39, No.2. Routledge.

† Nicol, F. and S. Roaf (2007). *Adaptive Thermal Comfort and Passive Architecture*. In **Advances in Passive Cooling**, pp1-29, Earthscan.

Oke, T.R. (1987). **Boundary Layer Climates**. Chapter 6 only. Methuen & Co., London.

Ong, B.L. (Ed. 2013) **Beyond Environmental Comfort**. Routledge.

Olesen, B. W. (2007). *The philosophy behind EN15251: indoor environmental criteria for design and evaluation of energy performance of buildings*. **Energy and Buildings** 39, pp740-749. Elsevier. [FS].

☞ see also **Design Principles** section

☞ see also: PROBE (Post-occupancy Review of Buildings and their Engineering) case studies at: [www.usablebuildings.co.uk/](http://www.usablebuildings.co.uk/)

### **Daylighting**

† Baker, N. and K. Steemers (2002). **Daylight Design of Buildings**. James & James Science Publishers.

Baker N V. (2007). *High performance daylighting – light and shade*. Revival Technical Monograph 4 [www.revival-eu.net](http://www.revival-eu.net) [FS]

Fontoynt, M. (Ed. 1998). **Daylight Performance of Buildings**. James & James (Science) Publishers Ltd. London.

† Lynes, J. (2008). *Light*. In **Metric Handbook-Planning and Design Data**. Third Edition. Architectural Press. [FS]

‡ Reinhart, C. (2014). **Daylighting Handbook I**. [www.DaylightingHandbook.com](http://www.DaylightingHandbook.com)

† Szokolay, S. (2003 / 2008). **Introduction to Architectural Science**. The basis of sustainable design. Architectural Press.

† Tregenza, P. and M. Wilson (2011). *Daylighting*. Architecture and lighting design. Routledge.

☞ see also The European Database of Daylight and Solar Radiation [www.satel-light.com/core.htm](http://www.satel-light.com/core.htm)

### Environmental Design Principles

- † Baker, N.V. (2009). **A Handbook of Sustainable Refurbishment: Non-Domestic Buildings**. Earthscan.  
 Baker N V. (2007). *Phase change materials in buildings – virtual thermal mass*. Revival Technical Monograph 1 [www.revival-eu.net](http://www.revival-eu.net) [FS].
- Bill Dunster Architects (2003). **From A to Zed**. Realising Zero (fossil) Energy Developments. BDA,  
 Burton, S. (2011). **The Handbook of Sustainable Refurbishment**. Housing. Earthscan.  
 Brophy, V. and J.O. Lewis (2011) **A Green Vitruvius**. 2<sup>nd</sup> Edition. Earthscan.
- † Ford, B., R. Schiano-Phan, E. Francis (Eds 2010). **The Architecture & Engineering of Draught Cooling**. PHDC Press.  
 Gething, B. and K. Puckett (2012). **Design for Climate Change**. RIBA.  
 Gonçalves, J.C. (2010). **The Environmental Performance of Tall Buildings**. Earthscan.  
 Hausladen, G. (2012). **Building to suit the Climate**. Birkhauser.
- ‡ Jones, P. (2008). *Thermal Environment*. In **Metric Handbook-Planning and Design Data**. Third Edition. Architectural Press.
- † Koch-Nielsen, H. (2002). **Stay Cool**. A design guide for the built environment in hot climates. James & James Ltd.  
 Kwok, A. and W. Grondzik (2008). **The Green Studio Handbook**. Architectural Press.
- † Krishan, A. et al (Eds 2014). **Climate Responsive Architecture: a design Handbook for Energy Efficient Buildings**. Tata McGraw Hill, New Delhi.  
 Roaf, S. et al (2001 and later editions). **Ecohouse: a design guide**. Architectural Press.
- † Szokolay, S. (2008/2014). **Introduction to Architectural Science**. The basis of sustainable design. Third Edition. Architectural Press.  
 Trachte, S. and A. De Herde (2010). **Advanced and Sustainable Housing Renovation**. International Energy Agency Solar Heating and Cooling Programme.  
 Tutt, P. (2008). Tropical Design. In **Metric Handbook**, Third Edition. Architectural Press.  
 Yannas, S. (2009). *Adaptive Environments*. A conversation with Anne Save de Beaurecueil and Franklin Lee. In **Articulated Grounds**, pp20-24. AA Agendas No.7, AA Publications.
- † Yannas, S., E. Erell and J.-L. Molina (2006) **Roof Cooling Techniques**. A Design Handbook. Earthscan.
- † Yannas, S. (1995). **Design of Educational Buildings. Book 1: Design Primer**. Environment & Energy Studies Programme, AA Graduate School, London.  
 Yannas, S. (Ed. 2000). **Designing for Summer Comfort**. EC Altener Programme. Environment & Energy Studies Programme, AA Graduate School, London. [FS]
- ‡ Yannas, S. (1994). **Solar Energy and Housing Design. Volume 1: Principles, Objectives, Guidelines**. AA Publications.
- ☞ see also sections on : Passive Heating and Cooling; Ventilation; Daylighting; Solar Control.  
 ☞ see also multilingual glossary of terms: [www.eesc.europa.eu/resources/docs/eesc-2011-01-en-fr-de-es.pdf](http://www.eesc.europa.eu/resources/docs/eesc-2011-01-en-fr-de-es.pdf)

### Environmental Design Data & Assessment

- Anderson, J. D. Shiers and K. Steele (2009) *The Green Guide to Specification*. BRE Press. [FS]  
 BRE (1998 and later). **BREEAM**. Building Research Establishment Report.
- † Boyle, G. (Ed. 2004). **Renewable Energy Power for a Sustainable Future**. OU & OUP.  
 Chadderton, D.V. (2014). *Air Conditioning. A practical introduction*. 3<sup>rd</sup> Edition. Routledge.
- † CIBSE (2008). **Concise Handbook**. Chartered Institution of Building Services Engineers, London. [FS]  
 CIBSE (2005). Guide B. **Heating, ventilating, air conditioning and refrigeration**. Chartered Institution of Building Services Engineers, London. [FS]
- † CIBSE (2008). **Concise Handbook** (see Guide F). Chartered Institution of Building Services Engineers, London. [FS]  
 CIBSE (2006) **Environmental Design**. Guide A, 7<sup>th</sup> Edition. Chartered Institution of Building Services Engineers, London. [FS]
- Jankovic, L. (2012). **Designing Zero Carbon Buildings - using dynamic simulation methods**. Routledge,  
 MacKay, D.J.C. (2009). **Sustainable Energy – without the hot air**. UIT. [FS]  
 Moss, K.J. (2007). **Heat and Mass Transfer in Buildings**. Second Edition. Taylor & Francis.  
 RIBA (no date). **Climate Change Tools**. Royal Institute of British Architects. See in particular the booklets on *Whole Life Assessment for Low Carbon Design* and *Carbon Literacy Briefing*.
- Thomas, R. (ed. 2006 and later). **Environmental Design**. Routledge.  
 Yannas, S. (1994). **Solar Energy and Housing Design. Volumes 1&2**.  
 Yannas, S. (1996). *Energy Indices and Performance Targets for Housing Design*. **Energy and Buildings** no. 23, pp237-249, Elsevier Science.

- ☞ see also: Specialist environmental software used on SED project work.
- ☞ see also: BRE Green Guide [www.bre.co.uk/greenguide](http://www.bre.co.uk/greenguide)
- ☞ see also: BREEAM [www.breeam.org/](http://www.breeam.org/)
- ☞ see also: CarbonBuzz [www.carbonbuzz.org/](http://www.carbonbuzz.org/)
- ☞ see also: PROBE (Post-occupancy Review of Buildings and their Engineering) case studies at: [www.usablebuildings.co.uk/](http://www.usablebuildings.co.uk/)
- ☞ see also: UK Building Regulations and Building Research Establishment (BRE) Publications.

### **Materials & Construction Techniques**

- Addington, M. and D. Schodek (2005). **Smart Materials and Technologies**. Architectural Press.
- Ashby, M. (2009). **Materials and the Environment**. Butterworth Heineman, Oxford.
- Berge, B. (2009). **The Ecology of Building Materials**. Architectural Press. [FS]
- Fernandez, J. (2006). **Material Architecture**. Emergent technologies for innovative buildings and ecological construction. Architectural Press.
- Woolley, T. (2006). **Natural Building**. A guide to materials and techniques. The Crowood Press.
- Zold, A. and S. Szokolay (1997). **Thermal Insulation**. PLEA Note 2. PLEA / University of Queensland.
- ☞ see also Environmental Design Principles & Data, Engineering Manuals, Environmental Analysis Tools & Data.

### **Passive Heating & Cooling**

- Bowen, A., et al (Eds. 1981). **Passive Cooling**. American Solar Energy Society.
- † Ford, B., R. Schiano-Phan, E. Francis (Eds 2010). **The Architecture & Engineering of Draught Cooling**. PHDC Press.
- † Givoni, B. (1994). **Passive and Low Energy Cooling of Buildings**. Van Nostrand Reinhold.
- Goulding, J.R., J.O.Lewis and T.C. Steemers (Eds. 1992 and later). **Energy in Architecture: the European Passive Solar Handbook**. Batsford for Commission of the European Communities.
- Koch-Nielsen, H. (2002). **Stay Cool**. A design guide for the built environment in hot climates. James & James (Science) Publishers.
- Littlefair, P. et al (2006). **Design for improved solar shading control**. CIBSE TM37.
- † Parsloe, C. (2005). **Sustainable low energy cooling: an overview**. Knowledge Series KS3. CIBSE.
- Santamouris, M. (Ed. 2007). **Advances in Passive Cooling**. Earthscan.
- Szokolay, S. (1996). **Solar Geometry**. PLEA Note 1. PLEA International / University of Queensland.
- Yannas, S. and O.D. Corbella (2001). *Learning from Built Examples in Rio de Janeiro*. **Proc. PLEA 2001**, Florianopolis. [FS]
- Yannas, S. (Ed. 2000). **Designing for Summer Comfort**. EC Altener Programme. Environment & Energy Studies Programme, AA Graduate School, London. [FS]
- † Yannas, S., E. Erell and J.-L. Molina (2006) **Roof Cooling Techniques**. A Design Handbook. Earthscan.
- ‡ Yannas, S. (1994). **Solar Energy and Housing Design**. *Volume 1*. AA Publications.

- ☞ see also: Daylighting; Design Principles; Ventilation

### **PLEA Conference Proceedings**

- PLEA 2017 Edinburgh; see online at: <https://plea2017.net/>
- PLEA 2016, Los Angeles, USA; see AA Library for proceedings.
- PLEA 2015, Bologna, Italy see Book of Abstracts and online at [plea2015](http://plea2015)
- PLEA 2014, Ahmedabad, India see online at: [plea2014.in/proceedings/](http://plea2014.in/proceedings/)
- PLEA 2013, Munich, Germany see online at: [plea-arch.org](http://plea-arch.org)
- PLEA 2012, Lima, Peru see online at: [plea-arch.org](http://plea-arch.org)
- Bodard, M. and A. Evrard (Eds. 2011). **Architecture & Sustainable Development**. Proc. PLEA 2011 Conference, Louvain-la-Neuve.
- Demers, C. and A. Potvin (Eds. 2009). **Architecture, Energy and the Occupant's Perspective**. Proc. PLEA 2009 Conference, Quebec.
- Kenny, P., V. Brophy and J.O. Lewis (Eds. 2008). **Proceedings PLEA 2008** Conference, Dublin.
- Wittkopf S.K. and B.K. Tan (Eds. 2007). **Sun , Wind and Architecture**. Proc. PLEA 2007, National University of Singapore. [CD]
- Compagnon, R. P. Haefeli and W.Weber (2006). **Clever Design, Affordable Comfort**. Vols 1& 2, Proc. of PLEA 2006 Conference. HES.so & University of Geneva. [CD]
- De Wit, M. (Ed. 2004). **Built Environments & Environmental Buildings**. Vols 1&2, Proc. PLEA 2004,

- Eindhoven Technical University. [CD]  
 GRECO (Eds. 2002). **Design with the Environment**. Proc. Of the 19<sup>th</sup> PLEA Conference (two volumes). GRECO & ACAD, Toulouse. [CD]  
 Pereira, F.O.R. et al (eds. 2001). **Renewable Energy for a Sustainable Development of the Built Environment**. Proc. of PLEA 2001 Conference. PLEA International. [CD]  
 Raydan, D.K. and H.H. Melki (2005). **Environmental Sustainability**. Vols 1& 2. Proc. PLEA 2005 Conference. Notre Dame University, Lebanon. [CD]  
 Steemers, K. and S. Yannas (Eds. 2000). **Architecture City Environment, Proc. of PLEA 2000**, James & James, London. [CD]  
 Szokolay, S. (1999). **Sustaining the Future. Energy, Ecology, Architecture**. Proc. of the PLEA 99 Conference. PLEA International with University of Queensland.  
 Maldonado, E. and S. Yannas (1998). **Environmentally Friendly Cities**. Proc. PLEA 98, James & James, London.

☞ see plea-arch.org for free access to PLEA Proceedings online

☞ see AA Library for printed copies of PLEA Proceedings from 1982 to 2011.

### **Sustainability Theories & Issues**

- Banham, R. (1984). **The Architecture of the Well-Tempered Environment**, The Architectural Press Ltd., London.  
 Bay, J.-H. and B.-L. Ong (2006). **Tropical Sustainable Architecture**. Social and environmental dimensions. Architectural Press.  
 Boardman, B. (2012). **Achieving Zero Delivering Future-friendly Buildings**. Oxford University.  
 † Braham, W.W. and D. Willis (Eds. 2013). **Architecture and Energy- Performance and style**. Routledge.  
 Cole, R.J., Z. Brown and S. McKay (2010). *Building Human Agency: a timely manifesto*. Building Research & Information, 38(3) pp339-350, Routledge. [FS]  
 Contal, M-H and J. Revedin (2009). **Sustainable Design. Towards a New Ethic in Architecture & Town Planning**. Birkhaeuser Verlag AG, Basel.  
 Edwards, B. (2010) **Rough Guide to Sustainability. A Design Primer**. RIBA Publishing  
 Hagan, S. (2001) **Taking Shape: the new contract between architecture and nature**. Architectural Press.  
 Mostafavi, M. and G. Doherty (Eds. 2010). **Ecological Urbanism**. Lars Muller Publishers.  
 Peters, T. (Ed. 2011). **Experimental Green Strategies**. Redefining ecological design research. AD Architectural Design 06/11, Wiley.  
 Rogers, R. (1997). **Cities for a Small Planet**. Faber & Faber, London.  
 Smith, P.F. (2006). **Architecture in a Climate of Change**. Architectural Press.  
 Tombazis, A. N. (2007). **Letter to a Young Architect**. Libro.  
 ‡ Yannas, S. (2013). *Architectural Research for Sustainable Environmental Design*. Proc. of ENHSA Conference on Architectural Education, Napoli.  
 ‡ Yannas, S. (2013). *Adaptive Architecturing*. In W. Braham and D. Willis (Eds) **Architecture and Energy**. Routledge.  
 † Yannas, S. (2011). *Adaptive Strategies for an Ecological Architecture*. Architectural Design AD 06/11 on Experimental Green Strategies, pp63-69. Wiley.  
 Yeang, K. and A. Spector (Eds. 2011). **Green Design: from theory to practice**. Black Dog Publishing.

### **Ventilation**

- † Baker N V. (2007). *Natural ventilation strategies for refurbishment projects*. Revival Technical Monograph 3 www.revival-eu.net. [FS]  
 ‡ CIBSE (2005). **Natural Ventilation in Non-Domestic Buildings**. Applications Manual AM10. Chartered Institution of Building Services Engineers, London. [FS]  
 CIBSE (2005). Guide B. **Heating, ventilating, air conditioning and refrigeration**. Chartered Institution of Building Services Engineers, London. [FS]  
 † CIBSE (2005). Guide A. Chapter 4. **Ventilation and Infiltration**. [FS]  
 Edwards, R. (2005). **Domestic Ventilation**. Elsevier Butterworth-Heinemann.  
 Ghiaus, C. and F. Allard (Eds 2007). **Natural Ventilation in the Urban Environment**. Earthscan. (The mathematical sections can be omitted).  
 Seppanen, O. (2007). *Ventilation strategies for good indoor air quality and energy efficiency*. 2<sup>nd</sup> PALENC Conference, Crete. [FS]



## 8.2 AA SED Staff & Student Publications 2012-17

### 2017

- Antoniou, A. and S. Yannas (2017). *The Residential Balcony in Mediterranean Climates*. Proc. PLEA 2017 "Design to Thrive" Vol 1 pp1014-1022.
- Calleja, H. (2017). *Climate-Responsive Facade Design for Office Buildings in London*. Proc. PLEA 2017 "Design to Thrive".
- Chatzidimitriou, A. and S. Yannas (2017). *Street Canyon Design and Improvement Potential for Urban Open Spaces*-influence of canyon aspect ratio and orientation on microclimate and outdoor comfort. In **Sustainable Cities and Society** Vol 33 pp85-101. Elsevier.
- Chulakasyena, D. and P. Cadima (2017). *Free-running High Rise Housing in Hot and Humid Climates – issues and solutions*. Proc. PLEA 2017 "Design to Thrive".
- Collo, F. and S. Yannas (2017). *Solar Urbanism and Building Design in Buenos Aires*. Proc. PLEA 2017 "Design to Thrive" Vol 2 pp1031-1038.
- Collo, F. and S. Yannas (2017). *Validation of Wladimiro Acosta's Helios System*. Proc. PLEA 2017 "Design to Thrive" Vol 3 pp477-485.
- Durmaz, E. and S. Yannas (2017). *Daylight and Thermal Performance of Office Buildings in Ankara*. Proc. PLEA 2017 "Design to Thrive" Vol 3 pp533-560.
- Giglio, I. and S. Yannas (2017). *Refurbishing the Corviale: a sustainable city inside a single building*. Proc. PLEA 2017 "Design to Thrive" Vol 2 pp1644-1652.
- Ghosh, O. and P. Cadima (2017). *Redeveloping Informal Settlements in Kolkata: a vernacular approach to 21<sup>st</sup> century design*. Proc. PLEA 2017 "Design to Thrive".
- Rashid, T. and M. Kapsali (2017). *Environmental Conditions for Improved Productivity: A Case for Adapting Post-war Office Buildings in UK*. Proc. PLEA 2017 "Design to Thrive."
- Shiva Ganesh, S. and J. Rodriguez Alvarez (2017). *Learning from the Chawl: a vernacular urban typology for contemporary communities*. Proc. PLEA 2017 "Design to Thrive".
- Torrubia, J. and S. Yannas (2017). *Adaptive Occupant Behaviour as a Design Strategy for Wellbeing Working Environments*. Proc. PLEA 2017 "Design to Thrive" Vol 1 pp1345-1353.
- Vilches, E. and S. Yannas (2017). *Traditional Architectural and Environmental Features of the Old City of Cadiz*. Proc. PLEA 2017 "Design to Thrive" Vol 2 pp1612-1620.
- Yang, J. and P. Cadima (2017). *Low-income residential design in Guangzhou, China: regaining the use of transitional spaces*. Proc. PLEA 2017 "Design to Thrive"

### 2016

- Al Sabbagh, N., P. Cadima and S. Yannas (2016) *Improving Pedestrian Thermal Sensation In Dubai*. In Proc. PLEA 2016, Los Angeles.
- Chatzidimitriou, A. and S. Yannas (2016) *Microclimate Design for Open Spaces : Ranking the effects of urban design parameters on pedestrian thermal comfort in summer*. In *Sustainable Cities and Society* 26, pp27-47. Elsevier.
- De Rosso, L and P. Cadima (2016) *Pocket Parks in São Paulo*. Proc. PLEA 2016 Conference, Los Angeles, United States.
- Esteve Arnau, S. and J. Rodríguez Álvarez (2016). *Defining Outdoor Comfort to Analyse Possible Bioclimatic Strategies for the Historical Urban Spaces of the City of Valencia*. In Proc. PLEA 2016 Conference, Los Angeles.
- Ghione, A. and S. Yannas (2016) *Alternative Tourist Accommodation for Venice*. In Proc. PLEA 2016, Los Angeles.
- Jing, L. and S. Yannas (2016) *Glazed Balconies for Residential Buildings in Zhengzhou, China*. In Proc. PLEA 2016, Los Angeles.

- Juneja, A. and P. Cadima (2016) *Courtyards as Semi-outdoor Learning Spaces: Exploring the potential of outdoor learning in primary schools*. Proc. PLEA 2016 Conference, Los Angeles, United States.
- McKee, D.C. and S. Yannas (2016) *Bay Windows of High-Rise Residential Buildings In Hong Kong*. In Proc. PLEA 2016, Los Angeles.
- Montoliu-Hernández, J. and J. Rodríguez-Álvarez (2016). *Crisis Architecture: Colonising unfinished residential structures*. In Proc. PLEA 2016 Conference, Los Angeles .
- Rodríguez Álvarez, J. (2016). Urban Energy Index for Buildings (UEIB): A new method to evaluate the effect of urban form on buildings' energy demand. *Landscape and Urban Planning*, 148, 170-187
- Rodríguez Álvarez, J. and S. Pintos-Pena (2016). *A Climatic Cartography for Sustainable Housing: Development of a meteorological classification in Galicia*. In Proc. PLEA 2016 Conference, Los Angeles
- Sánchez-Pérez, M.T and J. Rodríguez Álvarez (2016). *Lessons from Vernacular Architecture in the Mexican Bajío*. In Proc. PLEA 2016 Conference, Los Angeles.
- Stanitsa, A., O. Tsagkalidou and S. Yannas (2016) *Environmental Retrofit of the Unexploited Roofscapes in Athens and Thessaloniki*. In Proc. PLEA 2016, Los Angeles.



Over a dozen papers were presented by AA SED at PLEA 2015 held September 2015 in Bologna, Italy (left: PLEA 2015 Parallel Sessions; right: Pavitra Sanath Kumar (AA SED MSc 2014) presenting her dissertation project on Jaalis in one of the sessions).

## 2015

- Andone, A. and S. Yannas (2015) *Sunspaces- a retrofit study in Bucharest*. Proc. of PLEA 2015 Conference, Bologna.
- Bode, K. and J. Gonçalves (Eds. 2015) *O Edifício Ambiental*. Oficina de Textos, São Paulo.
- Cadima, P. (2015) *Mais Conforto e Menos Energia na Renovação de Edifícios Habitacionais em Climas Mediterrânicos*. In Gonçalves J.S. and K. Bode (Eds.) *Edifício Ambiental*. Oficina de Textos, São Paulo.
- Chatzidimitriou, A. and S. Yannas (2015) *Microclimate Development in Urban Open Spaces: the influence of form and materials*. In *Energy and Buildings* 108, pp156-174, Elsevier.
- Fernandez, J.M. and J. C. Goncalves (2015). The Environmental Design of Working Spaces in Equatorial Highlands Zones: the case of Bogota. *Buildings* 5 pp1105-1130.
- Lumbreras, M. and S. Yannas (2015) *Reactivating the Courtyard Typology for Work Environments in Mediterranean Regions*. Proc. of PLEA 2015 Conference, Bologna.
- Mardas, B. (2015) *Reshaping the Urban Block in Athens*. Proc. of 31st International PLEA Conference, Bologna, Italy.
- Nanaiah, M. and S. Yannas (2015) *Lessons from the Masters: a study of tertiary educational buildings in india*. Proc. of PLEA 2015 Conference, Bologna.

- Pamfili, M. and S. Yannas (2015) *Redefining Urban Living in Central Athens*. Proc. of PLEA 2015 Conference, Bologna.
- Pradeep, S. and P. Cadima (2015) *Passive Techniques for 24 Hour Working Environments: Design Strategies for Offices in Bangalore*. Proc. PLEA 2015 Conference, Bologna, Italy.
- Qubrosi, R. and P. Cadima (2015) *Lessons from a Bedouin: Desert Adaptive Architecture*. Proc. PLEA 2015 Conference, Bologna, Italy.
- Rodríguez Álvarez, J. (2015) *Housing retrofit in the European Context*. In Gonçalves, J. and K. Bode (Eds.) *Edifício Ambiental*. Oficina de Texto, São Paulo.
- Rossi, A., P.-L. Turco and S. Yannas (2015) *Migrant Centre and Primary School in Lampedusa*. Proc. of PLEA 2015 Conference, Bologna (PLEA 2015 Best Project Award).
- Sanath, P. and S. Yannas (2015). *Learning from the Traditional Jaali of India*. Proc. of PLEA 2015 Conference, Bologna.
- Scofone, A. and S. Yannas (2015) *Reshaping Cities after a Natural Disaster*. Proc. of PLEA 2015 Conference, Bologna.
- Sirichanchuen, P. and P. Cadima (2015) *A New Design to Achieve Thermal Comfort in Low-Income Community in Bangkok, Thailand*. Proc. PLEA 2015 Conference, Bologna, Italy
- Tsichritzis, L. and S. Yannas (2015) *The Glazing of Balconies as a Retrofitting Solution for Reducing the Heating Load of the Adjacent Room in Athens*. Proc. of PLEA 2015 Conference, Bologna.
- Yannas S. (2015) *Pesquisa Arquitetônica para o projeto Ambientalmente Sustentável*. In Gonçalves J.S. and K. Bode (Eds) *Edifício Ambiental*. Oficina de Textos, Sao Paulo.

## 2014

- Augsbach, P. (2014). *Assessing Pedestrian Thermal Comfort in Buenos Aires*. Proc. of PLEA 2014 Conference, Ahmedabad.
- Balakrishnan, P. (2014). *Cool Spots in Hot Climates: a means to achieve pedestrian comfort in hot climates*. Proc. of PLEA 2014 Conference, Ahmedabad.
- Hasman, M. (2014). *Vernacular Ecology: Environmental recreation of ancient dwellings in Southeastern Turkey*. Proc. of PLEA 2014 Conference, Ahmedabad.
- Martin del Guayo, P. and S. Yannas (2014) *Improving Outdoor Urban Environments: Three case studies in Spain*. Proc. of PLEA 2014 Conference, Ahmedabad.
- Mora, H. (2014). *Contemporary Use of Earthen Techniques in Colombia*. Proc. of PLEA 2014 Conference, Ahmedabad.
- Natanian, J. (2014). *The Open Air Office: Climatic adaptation of the office building typology in the Mediterranean*. Proc. of PLEA 2014 Conference, Ahmedabad.
- Projects in India. An exhibition of 12 AA SED Dissertation Projects curated by Simos Yannas and displayed at CEPT University Ahmedabad on the occasion of the PLEA 2014 Conference.
- Rodríguez Álvarez, J. (2014) *Planning Cities for the Post-Carbon Age. A Metabolic Analysis of the Urban Form*. PhD thesis. University of A Coruña. <[ruc.udc.es/dspace/handle/2183/11927](http://ruc.udc.es/dspace/handle/2183/11927)>

## 2013

- Ben Dayan, M. (2013). *Environmentally Responsive School Buildings in the UK*. Proc. of PLEA 2013 Conference, Munich.
- Fernández Prado and J. M. Rodríguez Álvarez (Eds. 2013) *Miscelánea Urbanística: Experiencias, retos e instrumentos*. Departamento de Proyectos Arquitectónicos y Urbanismo. Universidade da Coruña
- Rodríguez Álvarez, J. (2013) *Energy and Urban Form*. In Proc. PLEA 2013 Conference, Munich.
- Rodríguez Álvarez, J. (2013) *Environmental Retrofit. Urban energy upgrades in a mild Atlantic climate*. Lambert Academic Publishing
- Rodríguez Álvarez, J. (2013) *Heat Island and Urban Morphology*. In Proc. PLEA 2013 Conference, Munich.



Exhibition of 12 AA SED Dissertations on India at the PLEA 2014 Conference in Ahmedabad, December 2014

Rodríguez Álvarez, J. (2013) *La Tercera Revolución Ambiental*. In Chapter, Fernández Prado, M. And J. Rodríguez Álvarez, J. (Eds. 2013)

Rodríguez Álvarez, J. et al (2013) *Immaterial Design*. In Proc. PLEA 2013 Conference, Munich.

Rodríguez Álvarez, J., M. Abazti, L. Beis, M. Mena, J.C. Sanabria, R. Lei and E. Sophonudomporn (2013) *Visualizando el Metabolismo de las Ciudades*. In Proc. 4th European Conference on Energy Efficiency and Sustainability in Architecture and Planning. Donostia-San Sebastian

Weber, W. and S. Yannas, (Eds. 2013) *Lessons from Traditional Architecture*. Earthscan/Routledge.

Yannas, S. (2013) *Adaptive Architecturing*. In Braham W. And D. Willis (Eds) *Architecture & Energy* Routledge.

Yannas, S. (2013) *Architectural Research for Sustainable Environmental Design*. Proc. ENHSA Conference, Naples.

Yannas, S. (2013) *Adaptive Architecturing- a learning process*. Proc. of PLEA 2013 Conference, Munich.

## 2012

**Calleja, H. (2012) *Passive Cooling Strategies for a Digital Creative Industry Hub in Malta (2012)*. Proc. of NCEUB People and Buildings 2012 Conference, London.**

Calleja, H. (2012). *Cool Workspaces*. MArch Dissertation in Sustainable Environmental Design, AA School of Architecture, London

Zrim, G. (2012). *Double Skin Façade for Ljubljana Climate- Applicability Studies*. Proc. of NCEUB Conference, London.

*For pre-2012 AA SED publications see staff CV.*



SED publications on display at AA Open Day



SED students attending PLEA 2017 in Edinburgh seen outside the Scottish Parliament with Simos Yannas and Paula Cadima

### 8.3 Internet Sources

#### **AJ Sustainability**

<http://www.architectsjournal.co.uk/designingbuildings/sustainability/index.html>

#### **Biomimicry Database**

<http://database.portal.modwest.com/start.php>

#### **BUILD UP** : European portal for energy efficiency in Buildings

<http://www.buildup.eu/>

#### **British Library**

<http://www.bl.uk/>

#### **Building Green**

[www.buildinggreen.com](http://www.buildinggreen.com)

#### **Building Research Establishment (BRE)**

[www.bre.co.uk](http://www.bre.co.uk)

#### **CIBSE**

[www.cibse.org](http://www.cibse.org)

#### **Construction Resources**

Ecological building materials

[www.constructionresources.com/](http://www.constructionresources.com/)

#### **Department of the Environment, UK:** Sustainable development, building regulations, etc.

[www.defra.gov.uk](http://www.defra.gov.uk)

[www.sustainable-development.gov.uk](http://www.sustainable-development.gov.uk)

#### **Earth Systems Environmental Virtual Library**

<http://earthsystems.org/Environment.shtml>

#### **ECOark Environmentally Friendly Projects and Urban Ecology Initiatives (Norway)**

[www.ecoarc.net](http://www.ecoarc.net)

#### **EDUCATE**

[www.educate-sustainability.eu/](http://www.educate-sustainability.eu/)

#### **EnergyPlus.net**

Documentation

#### **European Commission Research**

<http://ec.europa.eu/research/research-eu/>

#### **Eurostat European Statistics**

<http://europa.eu.int/comm/eurostat/>

#### **Florida Solar Energy Center**

Building Case Studies and other information

[www.fsec.ucf.edu/bldg/baihp/casestud/index.htm](http://www.fsec.ucf.edu/bldg/baihp/casestud/index.htm)

#### **Global Eco-Village Network**

[www.gaia.org/index.htm](http://www.gaia.org/index.htm)

#### **Grasshopper for Rhino**

<http://www.grasshopper3d.com/>

#### **Green Building Council**

[www.ukgbc.org](http://www.ukgbc.org)

#### **Housing Energy Efficiency, UK**

[www.housingenergy.org.uk](http://www.housingenergy.org.uk)

#### **IEA Energy in Buildings & Communities**

[www.iea-ebc.org](http://www.iea-ebc.org)

#### **International Energy Agency Renewable Energy Projects**

<http://www.caddet-re.org/>

#### **International Institute for Sustainable Development**

[www.iisd1.iisd.ca](http://www.iisd1.iisd.ca)

#### **International Union of Architects**

[www.uia-architecture.org](http://www.uia-architecture.org)

#### **Lawrence Berkeley Laboratory**

[www.lbl.gov/](http://www.lbl.gov/)

#### **London Ecological Footprint**

[www.citylimitslondon.com](http://www.citylimitslondon.com)

#### **Macquarie University's Adaptive Comfort Project**

[http://atmos.es.mq.edu.au/~rdedear/ashrae\\_rp884\\_home.html](http://atmos.es.mq.edu.au/~rdedear/ashrae_rp884_home.html)

**MIT Design Advisor**

<http://designadvisor.mit.edu/design/>

**National Refurbishment Centre:**

<http://www.rethinkingrefurbishment.com>

**NCEUB Network for Comfort and Energy Use in Buildings**

[www.nceub.org.uk](http://www.nceub.org.uk)

**Open University**

[www.open.ac.uk](http://www.open.ac.uk)

**Open Studio / Energy Plus**

[www.openstudio.net/](http://www.openstudio.net/)

**Passive and Hybrid Draught Cooling**

[www.phdc.eu](http://www.phdc.eu)

**PLEA** (Passive and Low Energy Architecture) Sustainable architecture and urban design

[www.plea-arch.org](http://www.plea-arch.org)

**POWER HOUSE** Part of EU-funded Intelligent Energy Europe Programme

[www.powerhouseeurope.eu](http://www.powerhouseeurope.eu)

**Radiance**

<http://radsite.lbl.gov/radiance/>

**RETScreen Renewable Energy Project Analysis Software**

<http://retscreen.gc.ca>

**RIBA Royal Institute of British Architects** (Student membership)

<http://members.riba.org/student>

**Satel-light Database**

<http://www.satel-light.com/core.htm>

**Sciencedirect.com**

to locate scientific journal papers

**Solstice Online** source for sustainable energy information

<http://solstice.crest.org>

**Sustainable Development Gateway**

<http://sdgateway.net>

**Tas**

[edsl.net](http://edsl.net)

**UK Weather Information Site**

<http://www.weather.org.uk/index.htm>

**United Nations Environment & Climate Change Programme UNEP**

<http://www.unep.ch/iucc/>

**Usable Buildings (PROBE Studies)**

<http://www.usablebuildings.co.uk/>

**US Department of Energy National Renewable Energy Laboratory (NREL)**

<http://www.nrel.gov>

**World Architecture Community**

<http://www.worldarchitecture.org/main/>

**World Meteorological Organisation**

<http://www.wmo.ch>

**Weather Data** (Met Office Integrated Data Archive System)

<http://catalogue.ceda.ac.uk/uuid/220a65615218d5c9cc9e4785a3234bd0>

## 9 COURSE CREDITS, LEARNING OUTCOMES & ASSESSMENT CRITERIA

### 9.1 Course Credits

The course credits, learning outcomes and assessment criteria listed below encompass the team projects, technical studies, research papers and dissertation work in each term of the academic year. The hourly breakdowns are indicative.

<b>TERM 1</b>	<b>Hours</b>	<b>Credit</b>	<b>% total</b>
<b>PROJECT I</b>			
Lecture course attendance	50		
Workshops, Tutorials & Class Presentations	20		
Reading & Research & Design & Presentation	180		
<b>Subtotal</b>	<b>250</b>	<b>25</b>	<b>14%</b>
<b>TECHNICAL STUDIES (Project I)</b>			
Course attendance	10		
Workshops, tutorials	20		
Analytic work	40		
Writing & Illustrating	30		
<b>Subtotal</b>	<b>100</b>	<b>10</b>	<b>5.5%</b>
<b>RESEARCH PAPER</b>			
Course attendance	20		
Seminars, tutorials	10		
Reading & Research	30		
Writing & Illustrating	40		
<b>Subtotal</b>	<b>100</b>	<b>10</b>	<b>5.5%</b>
<b>TOTAL TERM 1</b>	<b>450</b>	<b>45</b>	<b>25%</b>
<b>TERM 2</b>	<b>Hours</b>	<b>Credit</b>	<b>% total</b>
<b>PROJECT II</b>			
Lecture course attendance	50		
Workshops, Tutorials & Class Presentations	20		
Reading & Research & Design & Presentation	180		
<b>Subtotal</b>	<b>250</b>	<b>25</b>	<b>14%</b>
<b>TECHNICAL STUDIES (Project II)</b>			
Course attendance	10		
Workshops, tutorials	20		
Analytic work	40		
Writing & Illustrating	30		
<b>Subtotal</b>	<b>100</b>	<b>10</b>	<b>5.5%</b>
<b>RESEARCH PAPER</b>			
Course attendance	20		
Seminars, tutorials	10		
Reading & Research	30		
Writing & Illustrating	40		
<b>Subtotal</b>	<b>100</b>	<b>10</b>	<b>5.5%</b>
<b>TOTAL TERM 2</b>	<b>450</b>	<b>45</b>	<b>25%</b>
<b>TERMS 3 &amp; 4</b>	<b>Hours</b>	<b>Credit</b>	<b>% total</b>
<b>DISSERTATION PROJECT</b>			
Seminars, reviews, & tutorials	50		
Reading, Research & Writing	850		
<b>TOTAL TERMS 3 &amp; 4 DISSERTATION PROJECT</b>	<b>900</b>	<b>90</b>	<b>50%</b>
	<b>1800</b>	<b>180</b>	<b>100%</b>



In Term 1, the course work submitted for assessment consists of a team project (25 credits for each team member), technical studies (10 credits for each member when submitted as team) and a research paper (individual submission worth 10 credits). Technical studies are normally part of project work. The work of each student must be clearly identified in all team work. Term 1 accounts for a total of 450 study hours representing 45 credit units or 25% of the total credit for the MSc / MArch in Sustainable Environmental Design (see above for a breakdown of study hours and credit units).

In Term 2 the assessed course work consists of a team project (25 credits), technical study (10 credits) and a research paper (10 credits) as in Term 1. Term 2 accounts for a total of 450 study hours representing 45 credit units or 25% of the total credit for the MSc / MArch in Sustainable Environmental Design.

In Terms 3 & 4 the assessed work consists of the Dissertation Project which is undertaken individually. Dissertation Projects account for a total of 900 study hours representing 90 credit units or 50% of the total credit for the MSc / MArch degree.

## 9.2 Term 1 Project I

### *Credit Units*

25 credit units (13.9% of total credits) 250 study hours including attendance of relevant lecture courses and other programme activities (see below for breakdown).

### *Brief*

Study of environmental attributes, design features and performance of urban environments and building structures. The project makes use of all the inputs, tools and resources provided by the taught programme in Term 1. The Project Brief is distributed and introduced on Week 2 of Term 1 and project work starts on the same week. Work on Project I is in teams of 4 students.

### *Aims*

The project aims to develop observational, analytic and synthetic skills, and the ability to ask and answer questions using the knowledge, scientific instruments and computational tools provided by the taught programme. It also tests how individual students perform as part of a team. It is typical of work graduates from the programme may be doing in practice.

### *Learning outcomes:*

On completion of this project students can be expected to be able to:

- i. undertake field studies involving building surveys, occupant interviews and environmental measurements.
- ii. undertake a critical appraisal of the environmental design attributes of buildings and outdoor spaces using on-site observations and measurements, as well as comparative performance data and calculated results
- iii. make proposals for improvements to existing buildings and outdoor spaces taking account of specificities of site, climate, building type and form, construction and occupancy.

### *Project Assessment criteria:*

Assessment of project reports is based on the following criteria:

- i. understanding of the principles, methods and tools introduced by the taught programme
- ii. application of observational skills and critical faculties
- iii. ability to test research hypotheses and find new data
- iv. demonstration of innovative thinking and creativity
- v. clear structure, writing and presentation of project results
- vi. referencing of sources of information using agreed conventions
- vii. individual contributions within the team.

## 9.3 Term 2 Project II

25 credit units (13.9% of total credits) 250 study hours including attendance of relevant lecture courses and other programme activities (see below for breakdown).

*Brief*

The findings of the Term 1 projects provide starting points for a new round of team projects focusing on the design of adaptive environments. The Project Brief is distributed and introduced at the beginning of Term 2. Work on Project II will be in teams of 4 students.

*Aim:*

To apply the knowledge and tools provided by the taught programme to the development of design proposals for a specific building programme, climate and site.

*Learning outcomes:*

On completion of this project students can be expected to be able to:

- i. develop designs for new buildings and urban environments taking account of the specificities of climate, site, and building type and exploring the possibilities offered by new materials and technologies
- ii. use information from built precedents to complement and support analytic work and as means of explaining / justifying design decisions
- iii. use selected environmental performance assessment and design research tools as and where needed to inform design decisions and assess the environmental impact and performance of proposed designs.

*Assessment criteria:*

- i. learning from built precedents and contextual studies applied to design research
- ii. clear approach in the formulation and investigation of design concepts and hypotheses
- iii. application of new knowledge and analytic tools introduced by the taught programme
- iv. ability for comparative analysis and interpretation
- v. demonstration of innovative thinking and creativity
- vi. adherence to project brief and preset requirements
- vii. clear structure, writing and presentation of project results
- viii. individual contributions within the team.

**9.4 Terms 1 & 2 Research Papers / Technical Studies***Credit Units*

Each Research Paper / Technical Study is equivalent to 10 credit units (5.5% of total credits) representing 100 study hours including attendance of compulsory taught components (see detailed breakdown). Each student must complete and submit one Research Paper and one Technical Study in each of the first two terms.

*Topics:*

Research Papers are critical reviews of published literature on any of the topics covered by the programme's lectures and project work. Submission format is to be based on a paper template that will be introduced in the Research Seminar. Maximum size of Review Paper submission: 3,000-4,000 words. Technical Studies are reports on analytic work undertaken on Projects I and II using the tools introduced in the Tools course and Design Research Workshop. They are submitted as part of team project documents.

*Aims:*

Doing research; familiarisation with relevant literature and research methods; organising and writing research papers and technical reports; learning to use specialist environmental design support tools and software; planning and undertaking analytic work, processing, interpreting and presenting results.

*Learning outcomes:*

On completion of these assignments students can be expected to be able to:

- i. undertake critical appraisals of theoretical and technical concepts of environmental design in architecture and urbanism
- ii. have a better understanding of selected literature
- iii. make use of appropriate analytical tools in conducting environmental design research.
- iv. have better understanding of how to plan, undertake, interpret and present research results.

*Assessment criteria:*

- i. familiarity with the relevant literature
- ii. knowledge and understanding of the principles and tools introduced by the taught programme
- iii. demonstration of observational skills and critical faculties
- iv. ability for comparative analysis and meaningful generalisation.
- v. clear approach to formulating and investigating research questions and arguments
- vi. meaningful use of analytic tools in testing hypotheses and finding new data
- vii. referencing of sources of information using agreed conventions
- viii. clear and concise writing and presentation of research results..

**9.5 Terms 3 & 4 Dissertation Project***Credit Units*

90 credits (50% of total credits) representing a minimum of 900 student learning hours including attendance of seminars and review sessions.

*Brief*

The Dissertation Project (DP) is supported by the Research Seminar that runs throughout the academic year. The DP is first introduced during Term 2 in conjunction with the Research Paper 2 from which the topic of the DP is normally derived in consultation with teaching staff. In Term 3 the brief of DPs is developed in some detail through a series of seminars and weekly tutorials.

*Aim:*

The Dissertation Project is a vehicle for undertaking a significant piece of research that reflects the programme's areas of research and students' personal interests, background, special skills and plans for the future. For the MArch, research is followed by a design application developed in some detail for a given design brief, site and climate. The MSc dissertation deals with design applicability of research results across climatic regions and/or building types and as such has a broader scope than the MArch dissertation.

*Learning outcomes:*

On completion of the MSc / MArch dissertation project students can be expected to be able to:

- i. undertake critical reviews of environmental design topics in contexts of their choice
- ii. study the environmental attributes of selected buildings and urban contexts
- iii. engage in design research investigating aspects of environmental sustainability
- iv. use analytic tools to inform design decisions and/or assess environmental impact and performance of buildings and cities
- v. develop design proposals and design applicability studies for new and existing buildings taking account of the specificities of climate, site, building type and architectural form
- vi. assess the possibilities and potential offered by new materials and technologies
- vii. plan, document and illustrate research results encompassing fieldwork, analytic work and design proposals.

*Assessment criteria:*

- i. Knowledge and understanding of the principles, methods and tools introduced by the taught programme
- ii. Application of critical faculties and observational skills
- iii. Ability to use field studies and analytic tools to test research hypotheses and find new data
- iv. Application of new knowledge and tools in design research and practice
- v. Demonstration of innovative thinking and creativity
- vi. Responsible application of technical knowledge and analytic tools
- vii. Clear and concise writing and visual presentation of project results
- viii. Referencing of sources of information using agreed conventions.

## 10 ORGANIZATION & SUBMISSION OF DISSERTATION PROJECTS

### 10.1 Choice of Dissertation Topics

The dissertation project is the final and most substantial piece of work for the MSc and MArch. Students are expected to confirm their choice of dissertation topic by the end of Term 2. This is formalised with the submission of a written outline followed by oral presentation to a review panel. The outline should identify the climatic region, urban context, building type and precedents (vernacular as well as contemporary), and particular environmental design research problems to be tackled. The development of dissertation research is supported by weekly individual tutorials. A list of MArch, MSc and MA Dissertations completed since the programme's initial validation for a Masters degree in 1994 is included in the Appendix.

### 10.2 Preparation of Dissertation Research Outline & Plan of Work

A written outline of the proposed Dissertation Project must be submitted by the end of Term 2. This should provide the following:

- i. **Descriptive title** of Dissertation Project
- ii. **Overview of proposed research area:** what is the topic, why is it of interest, what are the problems identified from the literature or through work accomplished so far this year, how to approach them.
- iii. **Research questions and hypotheses:** specific topics to investigate.
- iv. **Methodology:** how research hypotheses are to be tested. This may include :
  - **literature review** published sources consulted and to be consulted.
  - review of relevant **built precedents**.
  - **fieldwork** (if any); where, when, for how long and with what expected outcome.
  - **analytic work** (if any); what parameters will be considered, how are results to be assessed.
- v. **Expected outcome(s):** what kind of outcomes are expected from the research and how you expect to communicate them and / or use them in practice.
- vi. **Sources & Key references:** List of sources already consulted as well as those to be consulted.
- vii. **Timetable.**

### 10.3 Dissertation Document Structure & Contents

The Dissertation for the MSc / MArch Sustainable Environmental Design is an illustrated book of some 15,000 words (+/-1,000 words) for the MSc and 12,000 words (+/-1,000 words) for the MArch excluding references and appendices presenting the work as described below.

- i. **Cover Page:** this must include the title of the Masters degree: MSc or MArch Sustainable Environmental Design 2017-18 or 2017-19; the name of the school: Architectural Association School of Architecture; the title and subtitle of the Dissertation Project; student name(s) and surname(s); type of submission (Dissertation), month and year of submission (September 2018 for the MSc, January 2019 for the MArch).
- ii. **Abstract:** summary of dissertation project and its key findings (1-2 paragraphs).
- iii. **Authorship Declaration Form** (see 10.5 below)
- iv. **Table of contents:** a numbered list of Chapter headings and subheadings and the page number of the start of each section.

- v. **Acknowledgments:** individuals and/or institutions acknowledged for having helped with information, support, sponsorship (including bursaries and scholarships, e.g. Commonwealth Scholarship, AA School Bursary).
- vi. **Introduction:** summary of issues, problems and questions which led to the choice of the DP topic; what is the dissertation aiming to do; research questions and hypotheses tested; how was the work carried out (including reference to methods and tools used); summary of results obtained; how are the contents organised and presented (2-3 pages).
- vii. **State-of-the-Art / Literature Review** (or any other appropriate title): Critical review of published literature identifying and characterising the problems being addressed by the dissertation; formulation of research hypotheses. This chapter must demonstrate knowledge and understanding of the relevant literature not just your ability to quote or paraphrase from it. (10 pages or longer including illustrations).
- viii. **Context & Precedents** (or any other appropriate title): This may be a single Chapter or a multichapter Part. **Context** information should include weather data and climate analysis in a concise and meaningful manner. Introduce urban context and issues; this could be more or less extensive depending on your topic. **Precedents** should be a critical review of historical, vernacular and contemporary built examples. It is better to have few well selected case studies that were visited and looked at in some detail than many examples that are shown superficially (Context and Precedents could add up to a total of 15-20 pages or more).
- ix. **Fieldwork** (if any): Brief overview explaining why the fieldwork was undertaken, what it involved, how it was done, with what results and how are the results used in the dissertation.
- x. **Analytic Work:** This could comprise separate chapters for different types of analytic work; each section must include explanations on what the analytic work was performed for, how spaces were modelled, what parameters were considered, what values were given to these parameters, what results were obtained, how these informed the DP's research questions, etc. Further information on assumptions, input data, and outputs from individual runs should be included in an appendix.
- xi. **MSc Research Outcomes & Design Applicability** (or any fitting title relating to your project): Synthesis of the various research threads and results from literature, field studies and analytic work. Translation into design applicability proposals. **MArch Research Outcomes & Design Application** (or any fitting title relating to your project): Synthesis of research threads and results from literature, field studies and analytic work. Translation into design brief and design application.
- xii. **Conclusion:** summary of main findings and proposals (1-2 pages).
- xiii. **References:** listing of all published and unpublished sources consulted including Internet sources (see further information in this Programme Guide on how to cite bibliographical sources).
- xiv. **Appendices** (if any) with complementary information or data.

## 10.4 Referencing Conventions

### *Citation of sources of information*

All sources of information and data must be cited in project documents, research papers and dissertations. This must follow the conventions introduced below. Sources to be cited include books and other publications (journal and conference papers), material presented in lectures or given in a private communication (a tutorial, interview, telephone conversation, email message etc.) by SED staff, invited speakers, architects whose buildings were studied, occupants, etc. Information generated by taking measurements, processing data, performing simulations and/or by producing drawings and designs should also be attributed to sources consulted and the tools that were used in the process.

**a) Citation within main body of text:** References to bibliographical sources should be incorporated into your sentence syntax in one of the following ways:

Smith (2014a, 2014b, 2015) found that . . .  
 Recent work (Smith, 2017) suggests that ...  
 Early studies (Smith, 1975; Smith and Jones 1980; Jackson 1990) ...

**b) Tables and Figures:** the source must be cited below the table or figure. Example: (Source: **Smith 2000**). Tables or figures prepared especially for the document being submitted do not need to have a source cited unless some of the data contained were originated by others than the student submitting the work. However, previous works by the student should be cited if used as a source.

**c) Quotations:** A quotation is an exact reproduction of a statement or passage of text written by someone else. A quotation is always inserted in quotation marks and the text is formatted so as to be clearly differentiated from the main body of your text. For example:

***“Cities that are beautiful, safe and equitable are within our grasp.”***  
 (Rogers, *Cities for a Small Planet*, 1997)

Quotations should be followed (or preceded) by citation of their source using one of the citation conventions listed above. Reproduction of work by others verbatim without reference to the source is **plagiarism**, a most serious offence that can lead to disqualification from the degree (see AA Student Handbook and Academic Regulations for details).

**d) Footnotes:** footnotes at the bottom of the page can be used to comment on a source of information, statement or fact, or provide a definition or clarification, without interrupting the flow of the main text.

**e) References:** All sources cited in the text should be listed at the end of research papers and reports. Both published and unpublished items should be listed. There are several different ways of doing this. The following system should be followed on SED submissions:

- start with the first author's (or editor's) surname(s) followed by the initial(s) of his/her first name(s); where there is more than one author or editor, the names of the second and subsequent authors/editors should be preceded by a comma and entered initial first followed by surname (see examples below).
- next enter, placed in parenthesis, the year of publication or completion; where the person named is not the author but the editor of the document, precede the date with “Ed.” (see examples below)
- next type the title of the book or paper followed by the subtitle (if any), and/or title and other details of publication where the referenced item appears (e.g. in the case of a paper which is published in a journal or a volume of conference proceedings); highlight the title of the publication in bold or italics. (see examples below)
- next list (for papers or sections of books which are referenced) the page numbers relating to the start and end pages being referenced.
- next give the publisher's name.

#### **Examples:**

Arink, D., C. Boonstra, J. Mak (1996). **Handbook of Sustainable Building:** an environmental preference method for choosing materials in construction and renovation. James & James Science Publishers, London.

Goulding, J.R., J.O.Lewis and T.C. Steemers (Eds. 1992). **Energy in Architecture: the European Passive Solar Handbook.** Batsford for Commission of the European Communities.

Yannas, S. (1996). *Energy Indices and Performance Targets for Housing Design.* **Energy and Buildings** Journal 23, pp237-249, Elsevier Science, Lausanne.

Yannas, S. (2009). *What Can Buildings Tell Us, What Can We Tell Back.* In Proc. PLEA 2009, Quebec.

Smith, J. **Private communication.** 12 August 2016.

Energy Information Administration. *A look at residential energy consumption in 1997.* www.eia.gov (accessed 12 August 2013).

#### *Figures and Tables*

The word “Figure” applies to all illustrations (drawings, photographs, maps, graphs, diagrams, sketches, computer screen shots, etc.). No other word should be used instead. All figures must be numbered and

titled. The number and title of a figure should be placed **below** the figure. All figures **must** be referenced and discussed in the main body of the text. In the text refer to a figure as Fig. nn in the middle or end of a sentence or as Figure nn at the beginning of a sentence. The word "Table" describes any list or matrix of textual or numerical data. Tables included in a document must be numbered and discussed in the text by referring to this number. The number and title of a table (TABLE nn. TITLE) should be placed **above** the table. The sources of all tables and illustrations of which you are **not** the original author must be given in parenthesis after their title (Source: <name of source=surname of author and date of publication if source is published paper /book>). The full reference should be listed in the References section at the end of your document using the referencing conventions given above.

## 10.5 Submission Requirements for Dissertations

All submissions are to the Graduate School Administrative Coordinator's Office. Dissertation documents should be hardbound with black covers and must be submitted in **two** copies. Covers should be inscribed along the spine to include the following from left to right : <student first name and surname> <MSc 2018> or <MArch 2019>. There should be no inscription on the front or back covers of the document. Each copy must have an inside cover page which must contain the following information:

- Architectural Association School of Architecture
- AA SED Graduate School
- MSc (or MArch as appropriate) Sustainable Environmental Design
- Dissertation Project 2017-18 (2017-19 for MArch)
- Full Title and Subtitle of the Dissertation Project
- Student first name(s) and surname(s)
- September 2018 (MSc); January 2019 (MArch)

There is freedom in formatting and placing these titles, but the exact wordings should be as listed above. Dissertation Documents should be in **A4 Portrait Format** unless agreed otherwise. The size of the text of the MSc Dissertation must not fall below or rise above 15,000 words by more than 1,000 words (excluding appendices and bibliographical references). MArch Dissertations are expected to contain less text, with a target of 12,000 words, but substantially more visual material to illustrate the design application. All pages must be numbered including appendices. Sheets should be printed on both sides using paper of sufficient thickness. Text should be formatted single space using Arial or similar font, typesize 10 points for the main body of text, 8 points for captions. A convenient layout for Dissertation documents is to have the text formatted in a single column on the left or right hand page with figures and illustrations placed on the opposite page. Margin sizes are left to candidates' choice. All Figures and Tables must be numbered, titled and referenced following the guidelines given below. Dissertation documents must be accompanied by a **CD** containing the full document in PDF format. In addition, all illustrations must be included individually in a folder titled <Images> in JPG format at 300 dpi resolution in their original size. Finally, the CD should also include a folder titled <Models> containing the computer models and outputs produced using the environmental software introduced by the taught programme. The student's full name should be written on the surface of the CD accompanied by the words MSc Dissertation 2018 (or MArch Dissertation 2019). Dissertation documents must include a signed **Authorship Declaration Form** certifying that the contents of the document is the work of the signatory and that use of material from the work of others is duly acknowledged. The form should be bound into the document in a prominent position after the cover page. In addition to printed document and CD, a pdf file of the dissertation must be uploaded to the students' folders on the File Server. These pdf files are used for assessment and must therefore include the complete work. The deadline for the submission of 2017-18 MSc Dissertations is the 14<sup>th</sup> September 2018. The deadline for the submission of 2017-19 MArch Dissertations is the 11<sup>th</sup> January 2019.

## 11 ORGANIZATION & SUBMISSION OF COURSE WORK

### 11.1 Project Reports and Research Papers

In each of Terms 1 and 2 the course work submitted for assessment and credit consists of a team project, including individual technical studies, and an individual research paper. Project briefs are handed out at the beginning of each term. All course work submissions are to the Graduate School Administrative Coordinator's Office. Each document submitted for assessment must include a signed **Authorship Declaration Form** to certify that the contents are the students' own work and that use of material from the work of others is duly acknowledged. The form should be bound into the document in a prominent position after the cover page. Course work items are submitted in a single copy only. This must be bound with metallic spiral ring binding. Team project reports are normally submitted in A3 Landscape format. All other submissions are in A4 Portrait Format unless otherwise agreed. Each document must have a cover page with the following information:

- Architectural Association School of Architecture
- AA SED Graduate School
- MSc / MArch Sustainable Environmental Design
- Term 1 (or 2) Project (or Research Paper) 2017-18
- Full Title / Subtitle of Project / Paper
- Student first name(s) and surname(s)
- 13 December 2017 for Research Paper 1; 10 January 2018 for Term 1 Project; 21 March 2018 for Term 2 Project; 25 April 2018 for Research Paper 2.

There is freedom in formatting and placing these titles, but the exact wordings should be used as listed above. All submissions must be accompanied by a CD containing the full document (including illustrations) in PDF format. In addition, all illustrations must be included individually in a folder titled <Images> in JPG format at 300 dpi resolution in their original size. The students' full names should be written on the surface of the CD accompanied by AA SED 2017-18 and the Project / Research Paper title. In addition to printed document and CD, a pdf file of each team project and research paper must be uploaded to the students' folders on the File Server. These pdf files are used for assessment of course work and must therefore include the complete work.

### 11.2 Document Structure for Research Papers

All submissions **must** include the following sections:

- **Cover page:** this must include the information listed above.
- **Authorship Declaration Form**
- **Abstract:** a very brief summary of the paper (1 paragraph).
- **Table of contents:** a numbered list of the main headings and subheadings of the paper and the page number of the start of each section.
- **Acknowledgements:** individuals who have helped or provided resources, advice and information (including acknowledgment of sponsorships, bursaries or scholarships toward your studies at the AA School).
- **Introduction:** overview of issues and questions which led to the chosen topic with reference to the relevant literature; what did your paper set out to do and how; results obtained; how is your paper structured (1 page).
- **Main body of the document:** subdivided according to thematic, procedural or methodological criteria.
- **Conclusions:** summary of main findings and proposals.
- **References:** published and unpublished sources consulted including Internet sources (see below for academic conventions on how to cite bibliographical sources).



## 12 TEACHING STAFF CV's for details and lists of publications see [aaschool.ac.uk](http://aaschool.ac.uk)

**Simos Yannas** has led environmental design research at the AA School since the late 1970s and is a founding member of the PLEA international network on sustainable architecture and urban design. His most recent writings are on adaptive architecturing, learning from vernacular architecture and refurbishing the city.

**Paula Cadima** has worked for the European Commission in Brussels managing world-class research projects on energy efficiency, renewable energy sources and emerging fields. She chaired the sustainable architecture working group of the Architect's Council of Europe in 2009 and is a past-president of PLEA.

**Jorge Rodríguez Álvarez** has undertaken his PhD research on the planning of cities for the post-carbon age and is co-founder of SAAI, an international environmental design consultancy.

**Nick Baker** is a physicist specialising in building science and environmental design with special interest in thermal comfort and daylighting.

**Klaus Bode** is a co-founder of BDSP Partnership, an environmental engineering practice whose projects have included the Welsh Assembly Building, Bocconi University and the London School of Economics.

**Gustavo Brunelli** led the environmental design team for the London Velodrome and is currently in charge of the advanced building optimisation team at Hurley Palmer Flatt.

**Herman Calleja** is an environmental analyst with Chapman BDSP specialising in the use of parametric environmental design tools.

**Mariam Kapsali** is a design architect with Architype. She was previously a research architect with the Oxford Institute of Sustainable Development.

**Byron Mardas** is an environmental designer with Foster + Partners specialising in daylighting optimisation, outdoor thermal comfort and parametric modelling.

### 13 EXTERNAL LINKS

The programme has established contacts with fellow teachers, researchers and practising architects and engineers in many countries and has been involved in a variety of collaborative projects. The taught programme draws from this network of contacts. Colleagues who have contributed to the taught programme or collaborated in joint research or consultancy projects include:

**Prof. Servando Alvarez & Prof. J.-L. Molina** School of Engineering, University of Seville

**Denise & Rab Bennetts** Bennetts Associates Architects

**Prof. Michael Bruse** Johannes Gutenberg-University, Mainz, Germany

**Prof. Federico Butera & Prof. Gianni Scudo** Politecnico di Milano, Italy

**Prof. Joao Cabral** Technical University Lisbon

**Peter Chlapowski** PCKO Architects, London

**Prof. Oscar Corbella** Faculty of Architecture and Urbanism, Federal University of Rio de Janeiro

**Mario Cucinella** MCA, Bologna, Italy

**Prof. Claude Demers & Prof. Andre Potvin** Universite Laval, Quebec, Canada

**Prof. Andre De Herde**, Matriciel, Belgium

**Dr Arnaud Evrard**, VERNAtec, Germany

**Dr Sophie Trachte, Dr Magali Bodart** Architecture et Climat, Catholic University of Louvain, Belgium

**Bill Dunster** Bill Dunster Architects, London

**Prof. Andy Ford** South Bank University

**Prof. Brian Ford** Natural Cooling Ltd, UK

**Prof. Bill Gething** University of West England

**Prof. Dean Hawkes** (Emeritus) Welsh School of Architecture

**Richard Hawkes** Hawkes Architects

**Catherine Harrington** Architype Architects

**Dr Alan Harries** Integration, London

**Prof. Andreas Matzarakis** German Weather Service

**Prof. Fergus Nicol** Low Energy Architecture Unit, London Met

**Becci Taylor** Arup, London

**Ben Humphreys** Architype Architects, London

**Prof. Gary Hunt** University of Cambridge

**Prof. Kazuo Iwamura** Murashi Institute of Technology

**Prof. Yuichiro Kodama** University of Kobe

**Prof. Isaac Meir, Prof. Evyatar Erell, Prof. David Perlmutter** Centre for Desert Architecture and Urban Planning, Ben Gurion University of the Desert

**Prof. Edward Ng** Chinese University Hong Kong

**Manit & Sonali Rastogi** Morphogenesis, New Delhi

**Prof. Emmanuel Rey** EPFL & Bauart, Switzerland

**Prof. Harald Røstvik** Bergen School of Architecture, Norway

**Prof. Alan Short** University of Cambridge

**Dr Derek Taylor** Altechnica & Open University

**Alexandros Tombazis** Tombazis & Associates, Athens

**Recent AA SED Alumni working in London**

**Rafael Alonso Candau** Atmos Lab  
**Alexandra Andone** PRP Architects  
**Joyce Chan** HOK  
**Meital Ben Dayan** Architype Architects  
**Marina Breves Costa** Millier  
**Herman Calleja** BDSP Chapman  
**Bruno Chialastri** Heatherwick Studio  
**Camila Ines Della Bitta** Avanti Architects  
**Larissa De Rosso** Building Design Partnership  
**Danah Dib** Foster & Partners  
**Ruth Dominguez** Foster & Partners  
**Kimmy El Dash** ZedFactory  
**Stathis Eleftheriadis** Price & Myer  
**Joy Anne Fleming Mowbray** Sedley Place  
**Irene Gallou** Partner, Foster + Partners  
**Dominga Garufi** Richard Hawkes Architects  
**Ronak Gawarwala** HOK  
**Anastasia Gravani** Wilkinson Eyre Architects  
**Pablo Gugel** Atelier Ten, London  
**Vidhi Gupta** Price & Myers Engineers, London  
**Javier Guzman Dominguez** MV-BIM  
**Mina Hasman** SOM London  
**Amy Holtz** PLP Architecture, London  
**Kristin Hoogenboom** Foster + Partners, London  
**Shashank Jain** Chapman BDSP, London  
**Eleni Kaltsogianni** CFW Architects London  
**Mariam Kapsali** Architype Architects  
**Georgia Katsaouni** SPPARC Architects, London  
**Sooseok Kim** Populous London  
**Ayelet Lanel** Austerlitz Architecture  
**Victor Lopez Rioboo-Gil** Gordon Ingram Associates  
**Maria Lumbreras** Atkins, Colchester  
**Byron Mardas** Foster + Partners  
**Patricia Martin del Guayo** Shephard Epstein Hunter  
**Ricardo Messano** Foster + Partners, London  
**Jose Millan** Broadway Malyan  
**Juan Montoliu** Feilden Clegg Bradley Architects  
**Mileni Pamfili** Building Design Partnership BDP London  
**Pilar Perez del Real** Herriott Watt University  
**Kartikeya Rajput** Chapman BDSP London

**Jose Ramirez** Bennetts Architects  
**Rodrigo Rodrigues** Aedas Architects  
**Rudrajit Sabhaney** Associate, Foster + Partners, London  
**Vera Sarioglu** Arup London  
**Amedeo Scofone** WSP Environmental London  
**Danielle Severino** Eva Menz London  
**Milena Stojkovic** Associate, Foster + Partners, London.  
**Harsh Thapar** Associate, Foster + Partners, London.  
**Olga Tsagkalidou** Hodkinson Consultancy  
**Leonidas Tsichritzis** University of Kent  
**Pier Luigi Turco** SOM London  
**Laura Vasquez Bueso** AHMM Architects  
**Yiping Zhu** Make Architects, London.

*Recent AA SED graduates abroad:*

**Hiroki Abe** ABE Design Group, Portland, Oregon, USA  
**May Al-Hinai** Atkins, Oman  
**Carole Aspeslagh** Aspeslagh & Steyaert Architects, Brussels, Belgium  
**Laura Apezteguia** A+E Pamplona, Spain  
**Rodolfo Pedro Augspach** SDLA Sustainable Design Lab Architecture Brussels, Belgium  
**Tiffany Broyles** Thornton Tomasetti, New York  
**Aaron Budd** Sun Architects Manila, Philippines  
**Anne Cherian Matthew** Consulting Engineering Office, Abu Dhabi, UAE  
**Francisco Casablanca** Cline Bettridge Bernstein Lighting Design, New York  
**Irech Castrejon** Deimel Oelschager Architekten, Berlin  
**Joao Cotta** Oliveira Cotta Architects Campinas, Brazil  
**Ana Dias** AECOM Germany  
**Ece Durmaz** A Tasarim Mimarlik, Ankara  
**Rania El Zouki** American University, Beirut, Lebanon  
**Robert Fryer** Philadelphia University  
**Rohit Garg** Populous, New Delhi  
**Hina Gazi** Imar Urban Consultants, S. Arabia  
**Irene Giglio** MCA Architects, Bologna, Italy  
**Oindrila Gosh** Singapore University of Technology  
**Piya Gupta** Morphogenesis, Delhi, India  
**Shanuli Gupta** Cannon Design, Mumbai  
**Benito Gutierrez Blanco** ITESM Campus, Aguascalientes, Mexico  
**Alexandre Hepner** Studio ARKIZ, Sao Paulo  
**Blake Jackson** Tsoi Kobus & Associates Boston, USA  
**Atishay Jain** AJ Studios, Jaipur  
**Aarushi Juneja** Morphogenesis, New Delhi, India  
**Dong Ku Kim** Hyundai, Seoul, South Korea

**Mili Kiropoulou** HKS, Houston

**Bilge Kobas** Super Eight Collective, Istanbul, Turkey

**Varun Kohli** HOK & Merge Studio, New York

**Aimilios Kourafas** Archutopia, Dubai, UAE

**Ashwini Kovithila Thazhe Veedu** Space Matrix Design Consultancy, Bangalore, India

**Amy Leedham** Atelier Ten, San Francisco

**Eleni Malaktou** University of Cyprus, Cyprus

**Patricia Martin Del Guayo** Shepheard Epstein & Hunter

**Jenna Mikus** Intelligent Building, Arlington

**Humberto Mora** Escalar, Bogota, Colombia

**Pulane Mpotokwane** Arup, Johannesburg, S Africa

**Swastika Mukherjee** Purple Leaf Co., Beijing, China

**Tuan Anh Nguyen** RM Studio Beijing, China

**Barak Pelman** Technion Institute of Technology, Israel

**Shravan Pradeep** Pradeep Architects, Bangalore, India

**Rawan Qobrosi** Clay & Stone, Amman, Jordan

**Omar Rabie** Auroville Earth Institute, Auroville, India

**Isha Rathee** Populous, Delhi, India

**J.-F. Roger France** Greenarch Architects, Brussels, Belgium

**Ricardo Rosa** KRIPTON Architects, Lisbon, Portugal

**Andrea Rossi** MCA Architects, Bologna, Italy

**Izzati Mohamad Salim** Malaysian Resources Corporation Berhad Kuala Lumpur

**Tomas Swett** Browne & Swett, Santiago, Chile

**Afsaneh Tafazzoli MJM Architects, Toronto, Canada**

**Boyoon Zang** Korea Institute of Construction Technology, Seoul, Korea

See also SED LinkedIn Group; see AAEESED in Facebook; AASchool\_SED in Twitter



Display of MArch 2015-17 Graduates' Dissertation Projects, June-July 2017

## APPENDIX LIST OF SED DISSERTATION PROJECTS

This Appendix lists the topics of all MA, MSc and MArch Dissertation Projects completed successfully since the Environment & Energy Studies Programme was validated for Masters degrees in 1994-95. MA Dissertations in Environment & Energy Studies (AA EE) are from the ten year period 1995-2005. The MSc and MArch Dissertations in Sustainable Environmental Design (AA SED) start from 2006. These are listed separately for MSc and MArch following a reverse chronological order, starting from the more recent output. The listing includes the 11<sup>th</sup> cycle of AA SED that started in October 2015 and completed in September 2016 for the MSc and January 2017 for the MArch. Printed copies of all AA EE and AA SED Dissertations are kept in the SED Office. The AA Library stores a small selection. A larger selection is available in pdf format on the School's Jupiter File Server. MPhil and PhD Dissertations related to the programme's areas of research are listed at the end of the Appendix.

**SED 12<sup>th</sup> Cycle****2016-18***MArch Dissertations to be submitted January 2018***Maria Luisa Arze**

Diversification of the Chilean Mediagua

**Mohannad Abu Suhaiban**

Microclimate Devices for Outdoor Spaces in London

**Swati Bhargava**

Courtyards and Jaalis as Environmental Strategies in Workspaces

**Kanishk Bhatt**

Office Design in Ahmedabad

**Georgina Di Gironimo**

Adaptive Living Environments in Buenos Aires

**Tingting Gao**

Microclimate Sensitive Design along the Thames

**Daniel Ibarra Flores**

Energy Efficient Office Buildings in Mexico City

**Karthica Kalyanasundaram**

Passive Design strategies for housing clusters in the Tropic

**Anupa Ria Kurian**

Learning from Kerala's Vernacular Architecture

**Pavithra Lakshmi**

The House that Follows its Occupants from Chennai to Delhi

**Naitikkumar Patel**

Passive Design for High-Rise Residential Buildings in Dubai

**Anjana Suresh**

Redesign of Gandhi Street Market, Trichy

**Poonam Sachdev Kaur**

Redesigning the Bazaar in Mumbai

**Gunveer Singh**

24/7 IT Office in Delhi NCR

**Deep Kiran Gala**

Designing Vertical Financial Village in Mumbai.

*MSc Dissertations to be submitted September 2017*

**Nader Gebran**

Improving Walkability in Beirut, Lebanon's hot climate

**Athanasia Georgiadou**

Solar control in educational buildings in Greece

**Sara Cansın Güngör**

Design Guidelines for New High Rise Residential Buildings

**Rana Hammad**

Overheating in London Housing

**Borja Juncos Redondo**

Solar Control & Daylighting Problems in Office Buildings

**Anneloes de Koff**

Converting Vacant Churches into Housing in the Netherlands

**Maria Chiara Multari**

Office Building Design in London

**Artem Oslamovskyi**

Settlement Proposal for the Displaced in East Ukraine Conflict

**Matthew Richardson**

Building Up Housing: Vertical Interventions with CLT

**Doaa Salem**

Daylighting in Markets

**Anna Zachariadou**

Conversion of Industrial Buildings to Office Buildings

**SED 11<sup>th</sup> Cycle****2015-17**

*MArch Dissertations completed January 2017*

**Rafael Alonso (Distinction)**

Whole-Life Carbon in Office Building Design in London

**Ma Kristina Alvarez**

Back to Basics: The Design of an Eco-Resort in the Philippines

**Elias Anka**

Preserving Cultural Heritage: Environmental Retrofit of the Beirut Rose House

**Timothy De Los Santos**

Design of Sports Centre in Metro Manila

**Angela Dub**

Redefining Urban Living. Strategic Design for the urban block of Buenos Aires

**Paolo Flores**

Design of an Educational Complex in Metro Manila

**Romaissa Hadji** (Distinction)

Intermediate Spaces and its Environmental Impact on Office Towers in Dubai

**Varunya Jarunyaroj** (Distinction)

Rethinking HDB Flat. Applicable Design of Public Housing in Singapore

**Zahraa Makke** (Distinction)

Design of Village for Children of War in South of Lebanon: an orphanage and a school

**John Salama**

Occupying Residual Spaces Under Bridges. Adaptive Multi-Use Art Hub

**Shruti Shiva**

Learning from the Chawl: design of low-cost social housing in Mumbai

**Wan Fong Wu**

Urban Synergy: Adaptive Infill Living London – Central London Prototype

*MSc Dissertations completed September 2016*

**Angeliki Antoniou** (Distinction)

Redefining the Balcony on Residential Buildings in Thessaloniki, Greece

**Zina Berrada**

Design Guidelines for Villages in the Warm and Semi-Arid Regions of Morocco

**Drin Chulakasyena** (Distinction)

Design Guidelines for High Rise Housing in Bangkok

**Florencia Collo**

Solar Urbanism and Building Design in Buenos Aires, Argentina

**Ipsita Dash**

Low-Cost Housing in Coastal Odisha, India

**Olivier Dambron**

Potential of Bamboo Construction, Bali, Indonesia

**Ana Dias**

Design Guidelines for High-Rise Office Buildings in Rio de Janeiro, Brasil

**Ece Durmaz** (Distinction)

Daylight and Thermal Performance of Office Buildings in Ankara, Turkey

**Pakinam Eid**

Passive Design for Office Buildings in the Middle East

**Aksor Gurunlian**

Passive Building Envelopes for Buildings in Lebanon

**Müge Inan**

Adaptation of Historical Buildings into Working Environments in Istanbul

**Anusha Nanavati**

Design Guidelines for Schools in Tropical Climates, Mumbai



**Xiayi Qiu**

Case Studies of Residential Buildings in Warm-Humid Climate, Singapore

**Thajnu Rashid**

Retrofitting of Office Buildings in London

**Eashita Saxena**

Passive Strategies for Office Buildings in London

**Maya Sharif**

Reconstructing Camps in Beirut, Lebanon

**Malgorzata Anna Tomczuk**

Exhibition Pavilions in London

**Trishta B Vardhan**

Window Design Strategies for Work Environments in Mumbai, India

**Elena Vilches**

Learning from the Traditional Architectural Features of Cadiz, Spain

**Chunni Zhou**

Moisture Control for Housing in Lingnan Region, Guangzhou, China

**SED 10<sup>th</sup> Cycle****2014-16**

*MArch Dissertations completed February 2016*

**Antonio Almeida**

Integration of Industrial Remains at Sea Side Village of Trafaria, Portugal

**Sandheep Ellangovan**

Performative Stand for Outdoor Urban Markets

**Oindrila Ghosh** (Commended for Dissertation)

Revitalising the Informal City in Kolkata, India

**Irene Giglio**

Retrofitting Project for the Corviale, Rome, Italy

**Nimya Mariam**

High-Density Urban Living in Warm-Humid Climates, Cochin, India

**Wasinee Prasongsumrit** (Commended for Dissertation)

Shop-house Prototypes, Bangkok, Thailand

**Cindrella Semaan**

Integrating Vernacular Strategies into Contemporary Designs in Lebanon

**Monica Toledo**

Shopping Outdoor Spaces, Santiago, Chile

**Julia Torrubia Aznárez**

Perceived Environments in Offices, Madrid, Spain

**Ameer Mustafa Varzgani**

Ephemeral Art Pavilion, London, UK

**Jiayi Yang** (Commended for Dissertation)  
Urban Village Design for Communal Living, Guangzhou, China

**Daniel Zepeda**  
Free-Running Office Building, Guadalajara, Mexico

*MSc Dissertations completed September 2015*

**Irech Castrejon**  
Design Strategies for Sustainable New Housing Projects In The Toluca Valley

**Jet De La Rosa** (Commended for Dissertation)  
Comfort In The City: The Potential of Cooling Outdoor Urban Spaces in Metro Manila

**M<sup>a</sup> Francisca Echeverri**  
Environmental Potential of Flat Roofs in The Urban Context of Bogotá. Refurbishing The Informal City.

**Sheila Esteve Ganau**  
New Urban Strategies for the City of Valencia: A Bioclimatic Rethink for the Historical City

**Lu Jing**  
The Design of Glazed Balcony for Residential Buildings in Zhengzhou, China

**Aarushi Juneja**  
Potential of Courtyards in Educational Buildings of New Delhi: Exploring Outdoor Learning Spaces for Primary School Students

**Michelle Kuei**  
Shading the Outdoor Markets for Tapei City

**Jennifer Liao**  
Balconies as Outdoor Living Spaces in High-Rise Buildings in Sao Paulo.

**Aly Mahmoud**  
Strategies for Affordable Housing in Cairo

**Chad Mckee** (Commended for Dissertation)  
Adaptive Bay Window Design Strategies for High-Rise Residential Buildings in Hong Kong

**Mariana Moniz**  
Guidelines Towards Retrofitting an 18<sup>th</sup> Century "Solar" into a Rural Hotel in the North of Portugal

**Mattis Mussault**  
The potential use of natural ventilation in office buildings in Tokyo

**Arturo Reyes**  
Narrow stepped canyons in Mexico City. Improving outdoor comfort and water cycles.

**Maria Teresa Sanchez**  
Lessons from Domestic Vernacular Buildings

**Victoria Soto Magan**  
Daylighting Design for Non-Visual Effects in Research Environments

**Augusta Stanitsa** (with Distinction)  
Environmental Retrofit of the Unexploited Roofscape of Athens

**Olga Tsagkalidou** (with Distinction)  
Environmental Retrofit of the Unexploited Roofscape of Thessaloniki

**Tolga Uzunhasanoglu**

Environmentally Responsive and Inhabitant Centered State Secondary Schools in Istanbul, Turkey

**April Wang**

A Porosity Paradigm: Reconfiguration of Shophouse Morphology in Kaohsiung City.

**SED 9<sup>th</sup> Cycle****2013-15**

*MArch Dissertations completed February 2015*

**Han Chen** (with Distinction)

Design for High Density Residential Community

**Adriana Comi**

Social Housing in Mexico City

**Kimmy El-Dash**

Designing Out Fuel Poverty

**Mahmoud Ezzeldin**

The Future of Library Design

**Francisco Godoy** (Commended for Dissertation)

Eco Tourism in Chile

**Anahí González**

Primary Educational Spaces

**Madhulika Kumar**

School for Dance and Music

**Ayelet Lanel**

Educational Spaces - Learning from Nature

**Rhiannon Laurie** (Commended for Dissertation)

Future Library and Co-working Design

**Gabriela Nuñez-Melgar**

Temporary Shelter for the Homeless

**Artem Polomanny**

Resilient Commercial Environments

**Hyosik Pyo**

Design of Tall Residential Building in Daegu, S Korea

**Jorge Ramirez**

Local Identity for Rural Social Housing

**Andrea Rossi**

School & Community Centre in Lampedusa Island

**Praew Sirichanchuen** (Commended for Dissertation)

"Co-Production" of Low-Income Community in Bangkok

**Ganesh Sivakumar**

Affordable Housing Design

**Pierluigi Turco**

Migrant Centre in Lampedusa Island

**Mariyam Zakiah**

Self-Build Houses in the Mountains

*MSc Dissertations completed September 2014*

**Georgina Campbell** (Commended for Dissertation)

Reconstructing Township Primary Schools

**Larissa C De Rosso**

Outdoor Comfort in Small Open Spaces in São Paulo

**Neusa Fernandes**

Refurbishment of Porto's Historic Centre

**Maria Lumbreras** (Commended for Dissertation)

Re-activating the Building Skin

**Jose Millan**

Retrofitting the Village of Orcera in Andalusia

**Patricia Nogueira**

A Different Scenario for Residential Buildings in Brazil

**Pavitra Sanath Kumar**

Traditional Perforated Screens of India

**Leonidas Tschritzis** (with Distinction)

Residential Refurbishment

**SED 8**

**2012-14**

*MArch Completed February 2014*

**Adriana Briseno Campos** (Commendation for Dissertation)

Design of Primary Schools in San Luis Potosi, Mexico, A School for the Community

**Camila Della Bitta**

Rethinking the Market-Driven Urban Block, Capital Federal, Argentina

**Alessandra Ghione**

Architecture to take away- design of a minimal, flexible, movable tourist accommodation

**Shanuli Gupta**

Design of office buildings in warm and humid climates of Mumbai

**Javier Guzman**

Slow Urbanism - Developing the abandoned urban infrastructure in Seville, Spain

**Sooseok Kim**

Sustainable Built Form High Density Urban Areas of Seoul, Korea

**Juan Montoliu** (Awarded Distinction)

Crisis Architecture, Colonizing Existing Concrete Structures

**Mileni Pamfili** (Commendation for Dissertation)

Re-defining Urban Living in Central Athens

**Sanyukta Pande**

Corporate Work Environments, New Delhi, India

**Shravan Pradeep**

Design Strategies for 24 hour Work Environments in Bangalore

**Kartikeya Rajput**

Rethinking Tradition, Passive housing in the Desert

**Chandhana Ramesh**

Environmental Principles of Vastu Shastra for the Design of a residential community

**Harshini Sampath Kumar**

Respite Architecture, an alternative to sustain fishermen's livelihood

**Amedeo Scofone**

Reshaping Cities After Natural Disasters

**Danielle Severino**

Layering Microclimates, Atacama Desert, Chile

**Polina Vorobyeva**

Adaptive Building Skin for a High-rise Office Building in Temperate Climate of Moscow

**Yiping Zhu** (Commendation for Dissertation)

Extending Spaces and Fading Borders, Primary School Design in Xiamen, China

*MSc September 2013*

**May Al-Hinai**

Contemporary Passive Buildings, Lessons from the Traditional Typologies in Muscat

**Sarah Arboleda**

Use of local materials for low cost Housing in Bogota

**Marina Breves Costa**

Design guidelines for Informal Urban Communities in Rio de Janeiro

**Anne Cherian Matthew**

In Transition, Third working spaces as means to improve comfort in office buildings in UAE

**Rupalim Choudhury**

Enclosure Design for animals in captivity

**Juan Fernandez**

Rethinking the Work Environment in Bogotá

**Dominga Garufi**

Refurbishment of low-income housing in Palermo, Italy

**Wei Gong**

The Low Energy Use Office Building in Beijing

**Anastasia Gravani** (Commendation for Dissertation)

Refurbishing the City Centre : a.Urban Canyons

**Piya Gupta**

Climate Responsive Architecture for Urban Residence in New Delhi

**Eleni Kaltsogianni** (Commendation for Dissertation)

Refurbishing the City Centre : c. Arcades

**Eleana Malaktou**

Environmental refurbishment of the vernacular residential buildings in Cyprus

**Byron Mardas** (Commendation for Dissertation)

Refurbishing the City Centre : b. Urban Block

**Swastika Mukherjee**

The Veranda Office Mumbai, India

**Megha Nanaiah** (Awarded Distinction)

Lessons from the Masters, A Study for Tertiary Educational Buildings in India

**Jonathan Natanian** (Awarded Distinction)

Climatic adaptation of the office building typology in the Mediterranean

**Rawan Qubrosi** (Commendation for Dissertation)

Keeping the Nomad, Adaptive Bedouin House in Wadi Rum

**Isha Rathee**

Renaissance: Rural Housing Development in the Desert state of Rajasthan, India

**Swarnima Ray**

Outdoor Thermal Comfort in Warm and Humid Climate, Study of Urban Parks in Kolkata

**Tommaso Rosso**

Balcony Renovation: A chance to Rethink a Space

**Rashmei Sangtani**

Transitional spaces in Residences in the Composite Climate of Nagpur

**Vera Sarioglu**

Improving the Environmental performance of traditional Ottoman houses in Istanbul, Turkey

**Juan Vallejo**

Environmental responsive conversion of heritage buildings in southern Spain

**Zhenzhou Weng**

Development of a Framework of Rapid and Compact Design-Oriented Thermal Analysis

**Boyoon Zang**

A Study for the Reduction of Heating and Cooling Load in Seoul, Korea

**SED 7**

**2011-13**

*MArch February 2013*

**Alexandra Andone**

Density & Urban Form. Integrated environmental refurbishment of the peripheral superblocks in Bucharest

**Pedro Augspach**

Environmentally Responsive Architecture in the Urban Tissue of Buenos Aires

**Jose Luis Barros**

Self-Build Social Housing in Esmeraldas, Northern Ecuador

**Valli Chidambaram**

Passive cooling strategies for high rise office buildings in the warm and humid climate of Chennai

**Danah Dib** (Awarded Distinction)

Residential Development in Kuwait City

**Ronak Gawarwala**

Reinterpreting Courtyard Architecture as an Environmental Strategy for Tall Building Design in UAE

**Benito Gutierrez**

Environmental Strategies for Low-cost Communities in Hot-dry Regions of Mexico

**Ignacio Medina**

Beyond Energy Efficiency: Passive Strategies for Environmental Refurbishment in Madrid

**TA Nguyen**

Adaptive Housing in Climate Change: A Paradigm for Ho Chi Minh, Vietnam

**Saachi Padubidri**

Bazaars of Mumbai - outdoor thermal comfort in a hot-humid climate

**Pilar Perez Del Real**

Environmental strategies and comfort studies for a Research Center in Seville

**Izzati Mohamad Salim**

Designing Working Environments with Natural Ventilation in Warm and Humid climates : with reference to the case study of Kuala Lumpur

**Tomas Swett** (Awarded Distinction)

Office Building in Santiago, Chile. Rethinking the Office Building Typology for future scenarios.

**Ajaree Tedkajorn**

Cooling Strategies for Self-sufficient Social Housing in Bangkok

**Filippo Weber**

Contemporary passive shelters: A multi-functional development in Tuscany

*MSc September 2012*

**Chandini Agarwal**

Study of Urban Voids: Thermal Comfort in Outdoor Spaces in Composite Climate of Delhi

**Laura Apezteguia**

Refurbishing Navarra's Abandoned Stone Farmhouses

**Meital Ben Dayan** (Awarded Distinction)

Environmentally responsive primary school buildings in the UK

**Mariana Lebrao Cassins**

Passive Cooling for seaside hotel Buildings

**Payal Chaudhary** (Commendation for Dissertation)

Solar Control Strategies for Schools in Tropical warm and humid climates.

**Jayce Chen**

Moving towards User-Oriented Intelligent Systems: a study to balance user comfort and system efficiency in work environments

**Joao Cotta** (Awarded Distinction)

Impact of Window Design on Environmental Performance of work environments in S Paulo

**Nikhil Deotarse**

Cooling strategies and environmental quality for office buildings in Pune, India

**Rania El Zouki**

Environmental performance of the central hall house-Lebanon-:guidelines for reducing energy consumption in contemporary housing

**Patricia Gallardo**

Back to basics: upgrading environmental quality of the existing residential stock in San Juan de Los Lagos, Mexico

**Katia Iliopoulou**

Environmental Design Strategies for Primary School Building Typologies in Athens

**Atishay Jain**

Improving living conditions for rural/low income communities: Self build with earth in NW India

**Ashwini KTV**

Visual Comfort in Work Environments- Daylight Design, Visual Transitions and Adaptive Opportunities for IT Offices in Bangalore

**Mariam Kapsali** (Awarded Distinction)

Refurbishing the Urban Blocks in Central Athens

**Aimilios Kourafas**

Environmental Design Strategies for Urban Seaside Hotels in Southern Greece

**Bilge Kobas**

Smart With/out a Brain: A user-based sustainable take on intelligent skin components

**Shaker Majali**

Solar Gain and Thermal Mass: Passive strategies to achieve comfortable indoor environments in apartment buildings in Amman, Jordan.

**Luciana Mathew**

Enhancing the Thermal Performance of School Environments in Kuwait

**Marcelo Mello**

Refurbishing the Urban Fabric of Sao Paulo City centre

**Humberto Mora**

Guidelines for the Contemporary Use of Traditional Techniques in Colombia

**Sandra Morikawa**

Refurbishment of Underused Buildings in Central Sao Paulo

**Pulane Mpotokwane**

Pedestrianizing Gaborone, Botswana

**Christina Poulmenti**

Solar Control Design for Multi-storey Residential Buildings in Athens



**Omar Rabie**

Cool Screen: Experimental Perforated Masonry for Hot Climates

**Isabel Silvestre**

Environmental Refurbishment of Industrial Buildings/Warehouses in Lisbon

**Laura Vasquez**

Facade Design for Environmental Quality in Office Buildings: with reference to the warm climate of Tegucigalpa, Honduras

**SED 6****2010-12***MArch February 2012***Priji Balakrishnan** (Awarded Distinction)

Cool Streets in Hot Climates : A means to achieve pedestrian comfort in Sharjah, UAE

**Dana Bryan.**

Passive Aggression Low energy cooling in Los Angeles, USA

**Ece Cakir.**

Adaptive School Environments: Elementary school design through investigation of vernacular architecture in Mardin, Turkey

**Herman Calleja** (Awarded Distinction)

Cool Workspaces: Passive Cooling Strategies for a Digital Creative Industry Hub in Malta

**Ana Terra Capobianco.**

Recycling Superstructures in Sao Paulo

**Alda Coelho.**

Reshaping the suburbs of Maputo, Mozambique

**Xavier Cordero.**

The New American Model: Sustainably Densifying the Sprawling Suburban.

**Noah Czech.**

Sustainable City Blocks: Urban Microclimate, Building Envelope and Program

**Rohit Garg.**

Passive Cooling Strategies for Residences in the Composite Climate of New Delhi: Applications in a Multiple Generation Family Residence.

**Lourdes Gaspart.**

Alpine Rooftop Additions: Retrofit of multi-storey dwellings in the Swiss Alps.

**Branden Harrell.**

Community Housing, Soweto: Creating a Sustainable Township; 17 years Post Apartheid

**Mina Hasman** (Commendation for Dissertation)

Vernacular Ecology: Passive Strategies for Housing in Southeastern Turkey.

**Preeti Mogali** (Commendation for Dissertation)

Optimising Building Form and Wind Towers in Dubai: Reducing energy consumption in contemporary university architecture.

**Guilherme Rampazzo.**

Achieving Environmental Comfort in Detached Housing in the Sao Paulo region, Brazil

**Therezia Sloet Tot Everlo.**

EU Cultural Center in Rio de Janeiro: Employing the use of transitional spaces to achieve thermal comfort.

*MSc September 2011*

**Santiago Cala.**

Biomimicry: Research and application of biological strategies in the heating of buildings.

**Marianna Charitonidou.**

Sustainable Housing Design in Mykonos: Vernacular vs Contemporary.

**Ruggero Bruno Chialastri.**

Passive Cooling and Heating Strategies for Affordable Housing in Rome

**Francesco Emanuele Contaldo.**

Smart Refurbishment in the Mediterranean Context.

**Efstathios Eleftheriadis.**

Biology and Architecture : A new contract for sustainable solutions in the tropics

**Danai Frantzi-Gounari.**

Environmental Refurbishment: Upgrading the residential stock of Athens.

**Alexandre Hepner** (Commendation for Dissertation)

The Amazon Research Network: Sustainable Architecture for the Tropical Rainforest.

**Rita John.**

The Future of the Mall Culture in India.

**Georgia Katsaouni.**

Updating Vernacular: Design guidelines for vernacular settlements and buildings in Cyclades, Greece

**Keunjoo Lee** (Awarded Distinction)

Transitional Spaces for residential tall buildings in Seoul, Korea

**Patricia Linares** (Commendation for Dissertation)

Creative Refurbishment of Historic Housing in Santiago de Compostela.

**Jennifer Mikus.**

Empowering occupants to redefine comfort in the American home – Raising awareness through education and technology to influence occupant behaviour and demand less energy.

**Shreya Nath.**

The Passive 24 Hour Office Building in Bangalore, India

**Andrea Ortiz.**

The use of brick in Housing- Design guidelines for three different climates in Colombia.

**Joram Orvieto.**

Changeable and Adaptive Portable Architecture

**Prachi Parekh.**

Responsive facade for the warm and humid climate of Mumbai.

**Miryam Rizkallah.**

Environmental Performance of the Traditional Lebanese Windows.

**Bjorn T. Rosaeg.**

London at High Level: Environmentally Sustainable Urban Renewal and Expansion Possibilities.

**Philippe Saleh.**

Cool Balconies: Investigating the thermal properties of balconies in Lebanon

**Peggy Shih.**

Modern Sacred Environments

**Yukari Takagi.**

Passive Ventilation and Humidity Control for Existing High Rise Apartment Buildings in Tokyo, Japan.

**Anna Tziastoudi.**

Working Environments: Environmental design and organisational principles for office buildings in London.

**Aikaterini Vagianou.**

Passive Building Envelope in Multi-storey residential buildings in Athens.

**Joao Vieira.**

Concrete in Architecture: Thermal inertia as a passive cooling strategy in working environments in Rio de Janeiro.

**Helene-Sophie Vlachos** (Commendation for Dissertation)

Leftovers – Exploring the environmental potential of roofs and urban voids in Athens.

**Juliane Wolf** (Commendation for Dissertation)

Phase-Change-Materials: An Exploration of the environmental and architectural potential.

**Grega Zrim.**

Double Skin Facades for Ljubljana climate: Applicability Studies.

**SED 5****2009-11***MArch February 2011***Suraksha Bhatla.**

Tall Communities: Passive Urban Housing for the Tropics

**Ruth Dominguez.**

Habitat of pilgrims in Saint James Way: The use of water walls for transient spaces.

**Miguel Cardona Firpi.**

Re-Thinking the Crea Agenda in Barcelona: Designing adaptive urban living environments in a courtyard block.

**Celina Escobar.**

Reinterpretation of Residential Courtyard Typology in Seville: Density studies and Environmental Strategies.

**Pablo Gugel.**

Pushing the Climate Boundaries for Urban Earth-Sheltered Housing in Spain

**Constanza Jorquera.**

Achieving thermal comfort with passive means in a detached house central-southern Chile.

**Pamela Kravetsky.**

Urbanising the Detached House in Winnipeg's Extreme Climate: Low Energy Design Through Strictly Passive Means.

**Amy Leedham** (Awarded Distinction)

Re-humanizing the Hospital: Sustainable Innovations for Healthcare Architecture.

**Didar Ozelik.**

Underground Indoor Rock Climbing Center, Alacati, Turkey

**Jeewon Paek** (Commendation for Dissertation)

Environmental Performance of Adaptive Building Envelope Design: Urban housing in Seoul, Korea

**Francisco Ramirez** (Commendation for Dissertation)

Modular Low Carbon "Strawcrete": Self-Built Application for a Rural Community in South Central Chile.

**Rodrigo Rodrigues.**

Dynamic Roof Structures for Retail Use: A prototype for low energy design in a temperate climate.

**Fanor Serrano.**

Massive Timber Construction: An energy efficient urban infill in London.

**Orapim Tantipat.**

Multi-storey housing in the tropical city, Bangkok

*MSc September 2010*

**Hiro Abe.**

Learning from the Traditional Japanese House: Applying traditional techniques to contemporary houses in Tokyo.

**Carole Aspeslagh** (Awarded Distinction)

Natural Ventilation in the Urban Environment: Design Guidelines for schools.

**Evgenia Budanova.**

Refurbishment of industrial building into low energy residences in Moscow.

**Aaron Budd** (Commendation for Dissertation)

Environmental Diversity in Facade Design in the urban context of Toronto.

**Francisco Casablanca**

Environmental Assessment of housing in Puerto Rico: The Evolution of a transplanted housing typology in an island of warm and humid climate.

**Joanna Conceicao.**

Environmental Retrofits for Residential Buildings in Sao Paulo

**Cristina Crespo.**

Urban Microclimates of the old San Juan.

**Melpo Danou.**

Transformations at the Street Level of Athens.

**Gabriela Tristao Ferreira.**

Retrofitting of the traditional architecture of Terceira island in the Azores

**Anna Gkouma.**

The Balcony in the Greek Urban Context.

**Alfonso E. Hernandez.**

Combinatorial Transferable Bermed/Semi Buried Dwellings, Their Architectural Potential and Their Passive Environmental Design Strategies.

**Kristin Hoogenboom** (Awarded Distinction)

Adaptively Reusing London's Existing Industrial Fabric – Derelict to Domestic

**Shao-Fan (Eric) Hsu**

Sustainable Design Guidelines for Multi-Storey Apartments in Taipei.

**Shashank Jain** (Commendation for Dissertation)

Passive cooling through Ground Coupling: Application of Earth Air Heat Exchangers in Delhi.

**Mili Kyropoulou.**

Multi-storey residential buildings in north Greece: Balancing between daylight and thermal performance through facade strategies.

**Masoudeh Nooraei.**

Design Guidelines for Low Energy Multi-Storey Housing in Tehran, Iran.

**Joram Orviato.**

Mobile and foldable house in Italy

**Niken Palupi.**

Urban Semi-Outdoor Courtyard Cafe in Warm-Humid Climate. Case study Jakarta, Indonesia.

**Silvia Piccione.**

Energy Retrofitting of Social Housing Stock in Northern Italy.

**Sameena Rajendra.**

Cooling Without Air Conditioning, Hot Dry Climate, Kuwait.

**Gemala Rinaldi.**

New Guidelines for Town house in Jakarta, Indonesia

**Liliana Rodriguez.**

Modifying the Urban Microclimate in Outdoor spaces to provide thermal comfort in Monterrey, Mexico

**Roshanek Sajadian.**

Guidelines for Low Energy Housing in Northern Tehran

**Rohin Sher.**

Sustenance Through shared Comfort – Learning From Quantifying Passive Cooling Strategies In Hot Dry Ahmedabad.

**Roi Tzimika** (Commendation for Dissertation)

Exploring the thermal balance of single family detached houses in Northern Greece.

**Marco Vitali** (Commendation for Dissertation)

Potential and Applicability of Mixing Concrete with Straw

**Ruofan Yao.**

Passive design of detached house in the Yangtze Delta Region.

**SED 4**

**2008-10**

*MArch 2010*

**Isha Anand.**

Contemporizing Religious Architecture.

**Chanasit Cholasuek** (Commendation for Dissertation)

Sustainable Low Income Community in Bangkok.

**Jose Antonio Espinoza de Tudela.**

Post Disaster Housing for Chile

**Olga Maria Conto Sterling.**

Learning Environments in Informal Settlements, Colombia.

**Anuja Pandit.**

Contemporary Indian Housing, Pune, India – Making use of transition spaces as social and climatic mediator.

**Katerina Pantazi** (Commendation for Dissertation)

Urban Metaphors : Exploring the Urban Roofscape Of Athens.

**Gilda Riveros.**

Urban Social Housing in Colombia.

**Saranti, K.**

Architectural Microclimatic Interventions in a Square\_Patras Greece.

**Stojkovic, M.**

Dynamic Office Building Façade In Temperate Climate.

**Alexandra Theodorou.**

Accommodating Change: Housing in London

*MSc 2009*

**Georgios Athanasopoulos.** The Environment of Wineries.

**Nitin Bansal** (Commendation for Dissertation)

“Corbu” in the Tropics.

**Floriana Calise.**

The Boulder Houses on the Island of Ischia: An environmental evaluation.

**Ellen Cameron.**

Direct Coupling: The potential of openness for energy savings.

**Monika Choudhary.**

The Potential of Earth Architecture as Low Energy Design.

**Yun Ho Chung.**

Thermal Performance of Typical Classrooms in South Korea.

**Maria Dry.**

Evaluating the retrofitting of an old barrack into a library: the case study of the public library in Corfu.

**Hina Gazi.**

Emerging Learning Environments, UK

**Polytimi Ili.**

Evaluation of Retrofitting Methods: Conversion of the 'Spierer' Tobacco Warehouse in Valos, Greece.

**Snigdha Jain** (Commendation for Dissertation)

Impact of the built form and vegetation on the micro climate in residential sector in Delhi.

**Annisa Julison:**

Let the (Indirect) Sun Shine In : Daylight Retrofitting in the Courtauld's Gallery Central Room.

**Natalia Kafassis** (Commendation for Dissertation)

Exploiting Adaptation and Transitions: Learning from environments beyond the boundaries of comfort.

**Sharat Kaicker.**

Low Energy, High Intelligence Shopping Experience in North India.

**Kalliopi Limpou.**

Designing Outdoors: Ephemeral & Adaptive Book Shelters in Thessaloniki, Greece.

**Victor Lopez-Rioboo Gil.**

Reuse of Traditional Rural Housing in Abandoned Villages in Galicia, Spain.

**Viktoria Lytra.**

Environmental Design and Morphogenesis.

**Ricardo Messano.**

Environmental Retrofitting of Office Buildings in Sao Paulo.

**Alberto Moletto.**

Courtyard Housing Typology in a Dense Urban Area.

**Elli Papacosta.**

Adaptation and Reuse of the Existing Fabric: Converting Warehouses in London.

**Pushkin Passey.**

Daylighting in Adjacent Spaces of Atrium Buildings.

**Barak Pelman.**

PER-FORM-AION: Building Form and Thermal Performance on the Israeli Coastal Plain.

**Rudrajit Sabhanay** (Awarded Distinction)

Bioemulation: Investigation and Application of a Biomimetic Approach to Environmental Design.

**Aruna Sarkar.**

Exploring The Concept Of "Passive Zone" In Warmer Climates: Case for IT offices in India.

**Nicola Salis.**

Solar Control and Ventilation Strategies for Cellular Offices Buildings.

**Parag Savla.**

Transitional Spaces for Commercial Buildings in Warm and Humid Climates.

**Anna Vogiatzi-Tampa** (Commendation for Dissertation)

Transforming The Urban Void To An Urban Scene: The Potential For Sustainable Regeneration.

**SED 3****2007-09***MArch 2009***Jorge Eduardo De Souza Hue.**

Design of a Cultural Centre in Madureira, Rio De Janeiro.

**Eric Blake Jackson.**

Rethinking The AA Graduate School-Scheme for a Bioclimatic Live/Work Facility.

**Gwenedd Murray.**

Ecological Learning Centre for the Marin Academy, San Rafael, California

**Lucy Ely Querales.**

Re-shaping Energy Efficient Buildings through Microclimatic Assessment: Caracas Case.

**Ekachai Sophonudomporn.**

Dynamic Daylighting Responsive: A Design Proposal for an Art Gallery.

**Anya Thomas.**

Gone Fishing. Self help development for low income fishing communities in Sri Lanka

*MSc 2008***Mania Ampatzi.**

Bioclimatic Strategies for Seaside Resorts on Greek Islands.

**Leonidas Beis.**

Case Study of an Electronics Megastore in Markopoulo, Greece.

**Avanti Karnani.**

The potential of thermal mass in school buildings in Hot Arid Climate of Aswan, Egypt.

**Gangrong Lei.** (Commendation for Dissertation)

Naturally Ventilated Urban Housing in Southern China.

**Maria Mena D.**

Dynamic Canopies: a Microclimatic Intervention for Outdoor Comfort.

**Shailee Nalawade.**

Passive Strategies For Multi-Storeyed Residential Housing In Pune, India.

**Dipti Naphade.**

Thermal Comfort in Outdoor Activity Spaces in the climate of Nagpur.

**Kohei Omori.**

Seeking Below Ground: Potential Of Underground Office Building In Tokyo.

**Lisa Ann Pasquale** (Commendation for Dissertation)

Operational Logic: Control, Behaviour and Performance Sustainment at the Eden Project.

**Jorge Rodriguez Alvarez** (Awarded Distinction)

Environmental Retrofit: Energy Upgrades of Urban Dwellings in a Mild Atlantic Climate.

**Michael Smith-Masis** (Commendation for Dissertation)

Social Housing in Costa Rica's Warm Humid Climate: Strategies and considerations for passive design.

**Afsaneh Tafazzoli.**

Urban Environmental Shopping Centres: Lessons from the Environmental Function of Isfahan Bazaar.



**Paria Tomprou.**

Flexibility and Comfort in Dancing Environments: Building and Human Envelope Responses.

**Priya Vakil.**

The Intelligent Skin for Office Buildings in Mumbai.

**SED 2****2006-08***MArch 2008***Kanika Agarwal.**

Residential Cluster Development of a Housing Community Based on the traditional pol housing.

**Yasamin Arbabi.**

High Altitude Design: Optimising Residential Architecture in the Alborz Mountain.

**Tiffany Broyles.**

Ground UP: Defining an Architectural Typology for the Urban Farm.

**Vidhi Gupta .**

Rethinking "Openings and Voids" in the design of a "Quality Workspace"

**Krista Murray Raines.**

Rethinking the Underground Passenger Environment.

**Annie Diana Babu.**

A Low Energy Passenger Terminal Building for Ahmedabad Airport, India.

**Lai Min-Hui.**

Low Energy Row House Community in Kaohsiung (South Taiwan).

**Farah Naz.**

Energy Efficient Garment Factories in Bangladesh.

*MSc 2007***Mathew Frankel.**

Microclimate Furniture: Defining a New Urban Typology.

**Surane Gunasekara.**

A Study of Wellbeing: Designing an energy efficient detached micro work space.

**Yuan -Chun Lan.**

Dynamic Façade: A responsive skin for multi-storey apartment buildings in Taiwan.

**Sachin Rastogi.**

Passive and Low Energy Design Ideas for High Rise Residential Buildings in Delhi

**Harsh Thapar.**

Microclimate and Urban Form in Dubai.

**Lydia Yiannoulopoulou.**

Autonomising Community or Communitising Autonomy: Seeking for an Autonomous Community.

**SED 1****2005-07****MArch 2007****Giles Bruce** (Commendation for Dissertation)

High Density, Low Energy. Achieving solar access for Dublin's multi – storey apartment developments.

**Haven Burkee**

Comfort in the Keys: Low energy residential design in the Florida Keys.

**Natalia Kokosalaki**

Lightweight Stadium for Hot Climates.

**Sayed Z. Majidi** (Commendation for Dissertation)

Next Stop Kabul – rapid structures and climate context.

**MSc 2006****Ahmed Abouzeid.**

Sustainable and Informal.

**Olutobi Adamolekun** (Commendation for Dissertation)

Low-Income Housing in Lagos – Sustainable Techniques for Modular Construction

**Joyce Chan.**

Public "Living-Room" in Hong Kong

**Anastasia Dretta.**

Sustainable Retrofitting of Office Buildings in the Mediterranean Context.

**Clarice Fong.**

Out of the Box – Reinventing the Industrial Warehouse

**Manuel Alejandro Gallardo Gonzalez.**

A Prototype House for a Sustainable Small scale Development in Baja Sur, Mexico.

**Varun Kohli** (Commendation for Dissertation)

The New St Anthony's School : Creating Learning Environments in the Nilgiri Hills of Southern India.

**Federico Montella**

Environmental Functions of a Buffer Space for a Shopping Mall.

**Debra L. Raymont.**

Low Income Housing – an Approach through Sustainable Design.

**Vasiliki Sagia.**

Double Enclosure Application for a Commercial Building in Athens, Greece.

**Aadil Salim.**

Outdoors-Indoors Courtyards in Kerala, India.

**Sandro C. Tubertini.**

Low Energy High Rise Office Buildings for Sao Paulo, Brazil

**Olga Tzioti.**

Redifining Libraries.

**Steven Vujeva** (Commendation for Dissertation)

Suburban Extensions to Single Family Detached Long Island Dwellings for Energy Efficiency.

**MA Environment & Energy Studies****1995-2005**

Listing is in alphabetical order of student family names. MA Dissertations marked with an asterisk (\*) were awarded a Distinction or a Commendation.

- Albers, M.** (1999). *Passive Solar Design for Refurbished Attic Spaces*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Altamirano, H.** (2002) *Reaching Adequate Thermal Performance In Low Income Chilean Housing*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Aristizabal, A.** (1998). *Plan Organisation and Natural Ventilation in the New Environmental Office Buildings*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Arizmendi, A.** (2001). *Sustainable Geometries*. natural forces that maximise environmental susceptibility with case study design project for a house. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Barlas, K.** (2002). *Environmental Retrofitting of the Urban Block in the Contemporary Greek City*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Bhide, S.** (2001)). *Passive Cooling Toward Sustainable India*. with special reference to passive draught evaporative cooling systems. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Blouin, A.**(2002). *A Sustainable Country House Designed For The South Eastern Canadian Climate*. MA Dissertation (\*). Environment & Energy Studies Programme. AA Graduate School, London.
- Bondonio, A.** (2000). *The Compact City In The UK*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Branger, A.** (1995). *Emerging Stereotypes of the Low Energy Office Building in the UK*. MA Dissertation (\*). Environment & Energy Studies Programme, AA Graduate School, London.
- Brunelli, G.** (2004). *Environmental Design of Industrial Buildings*. MA Dissertation (\*). AA E+E, London.
- Carro, C.** (2000)). *Daylight And Its Use In Museums*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Cascone, P.** (2003). *Operative Topographies: low energy housing and urban agriculture in Central Italy*. MA Dissertation. AA E+E, London.
- Chatzidimitriou, A.** (2003). *Urban Voids: studies of outdoor spaces in the city of Thessaloniki, Greece*. MA Dissertation (\*). AA E+E, London.
- Cheung, A.** (2003). *Home-Office in an Urban Tower*. MA Dissertation. AA E+E, London.
- Constantinidou, C.** (1999). *Environmental Performance Assessment of the Office Building in Central Athens. Retrofitting Proposals*. MA Dissertation. E&E Programme. AA Graduate School, London.
- Costella, M.** (2005). *A Low-Energy Urban House Designed for the Southern Brazilian Climate*. MA Dissertation. AA E+E, London.
- Davis, K.** (2004). *Low Energy Housing and Sustainable Urban Communities*. MA Dissertation. AA E+E, London.
- De Echarri, G.** (2002). *Night time cooling and complementary strategies in office buildings in Madrid*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Dipotontro, G.** (2001). *Building Underground In Hot Climates*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.

- Duque, G.** (1998). Cool Islands for Hot Weather Cities: Rethinking the Open Space with the Active Square. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Erickson, J.** (2003). Comfort through Change: an adaptable building facade. MA Dissertation (\*). AA E+E, London.
- Ernest, R.** (2004). Street Markets. MA Dissertation. AA E+E, London.
- Estrada, C.** (2004). Environmentally Efficient Workspace Planning. MA Dissertation. AA E+E, London.
- Filippopoulou, E.** (2004). Thermal and Visual Comfort for Contemporary Housing in Greece. MA Dissertation. AA E+E, London.
- Fleming, J.-A.** (2005). Re-inventing the Irish Cottage: an Autonomous House for Rural Northern Ireland. MA Dissertation. AA E+E, London.
- France Roger, J.-F.** (1996). Toward Solutions for Better Comfort for the Working Environment in Urban Areas. MA Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.
- Fryer, R.** (2003). Form and Misuse: investigations into exceeding the performance of sustainable materials. MA Dissertation. AA E+E, London.
- Gaiser, W.** (2003). Passive Cooling for Conservation: achieving stable indoor conditions in a desert library. MA Dissertation (\*). AA E+E, London.
- Galarza, P.** (1998). Recycling Structures as an Environmental Alternative. A Case Study. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Gallegos Cobo, U.** (2000)). *Environmental Characteristics Of Tensile Structures*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Garozzo, C.** (2001). *The Architecture Of Historical Hypogeal Buildings And Its Application In Contemporary Practice*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Gavalas, A.** (2003). Sustainable Design and Retrofitting of a Commercial Building in Athens. MA Dissertation. AA E+E, London.
- Giatili, S.** (2001). *Adjustable Facades in the Mediterranean*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Goncalves Soares J. C.** (1997). The Environmental Impact of Tall Buildings in Urban Centres. MA Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.
- Grohmann, S.** (1998). Building Inside the City: A Socially and Environmental Conscious Analysis of the Relation Between Buildings and External Space in Two High-Density Housing Developments in London's Urban Context. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Gruenberg, M.** (2001). *Text and Design: comparison of four environmental architects*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Hajek, S.** (1996). Lightwells and Courtyards in Old Town Houses in the Inn-Salzach Region: four case studies in Wasserburg am Inn. MA Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.
- Herrera-Rojas, A.** (2003). The Role of Conservatories for Sustainable Housing in the UK. MA Dissertation. AA E+E, London.
- Hirsch, D.** (1998). Environmental Design and Rehabilitation of Disused Industrial Complexes. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Gallou, I.** (2004). Façade as Adaptable Skin. MA Dissertation. AA E+E, London.
- Gavalas, P.** (2005). Low Energy Light Industrial Buildings In Greece. MA Dissertation. AA E+E, London.
- Goncalves, M.** (2005). Projeto CASA - Sustainable Modular Architecture for Social Housing in Curitiba, Brazil. MA Dissertation. AA E+E, London.

- Goldman, D.** (2002). *California's Relocatable Classrooms*. MA Dissertation (\*). Environment & Energy Studies Programme. AA Graduate School, London.
- Grill, B.** (1996). *The Double-Skin Glass Facade*. MA Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.
- Holtz, A.** (2005). *Adaptive Prototype House: a design alternative for environmentally responsive social housing*. MA Dissertation. AA E+E, London.
- Huang, Y.** (2005). *Energy-efficient solutions for adaptable space: studies on studio space in London*. MA Dissertation. AA E+E, London.
- Hsieh, A.** (2002). *Vertical elements for natural ventilation: functional or aesthetic*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Indranata, K.** (2000). *Breeze For Jakarta: Retrofitting Residential Buildings In Tropical Climates*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Ito, R.** (2003). *Evaluation of Case Study Project in Ghana*. MA Dissertation. AA E+E, London.
- Johnston, J.** (2005). *Encouraging principles of sustainability in landscape architecture education*. MA Dissertation. AA E+E, London.
- Kalamatianou, F.-L.** (2004). *Environmental Retrofitting of Performance Spaces*. MA Dissertation. AA E+E, London.
- Kaye, I.** (2004). *Home for the Modern Nomad and the Street Homeless*. MA Dissertation. AA E+E, London.
- Khan, Z.** (2005). *Rethinking Spaces for Learning with special reference to Dhaka, Bangladesh*. MA Dissertation. AA E+E, London.
- Kalapanida, M.** (2001). *Environmental Aspects of Ancient Greek Buildings*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Kalograia, D.** (1998). *Eco-Concrete: A Possibility or a Contradiction?* MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Karagiannaki, S.** (2002). *Restoring A Conserved Residential Unit In Athens*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Kausch, A.** (1997). *Environmental Considerations in the Projects of Alsop & Stormer: is low energy building compatible with any architectural style ?* MA Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.
- Keller, T.** (2001). *Toward Sustainable Urban Development. environmental retrofitting of working units in London*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Khodr, J.** (1998). *The Traditional Living Room Versus the Modern Day Living Room in Kuwait*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Kiskini, C.** (1999). *Environmental Retrofitting of Museums with two Case Studies in Northern Greece*. MA Dissertation (\*). Environment & Energy Studies Programme. AA Graduate School, London.
- Kohli, M.** (1998). *The Use of Natural Ventilation in Contemporary Public Service Buildings in the UK*. MA Dissertation (\*). Environment & Energy Studies Programme. AA Graduate School, London.
- Konsta, P.** (2001). *Passive Systems Active Buildings :GEK Headquarters, Athens*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Kotani, A.** (1998). *The Paper Shelter-Recycling Paper for Building Structures*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Kraus, J.** (2005). *Lightweight facades and flexible assemblies*. MA Dissertation. AA E+E, London.
- Kreitmayer, B.** (2004). *Tourist Dwellings on the Adriatic Coast*. MA Dissertation. AA E+E, London.
- Krenz, A.** (2001). *The compact city: comfort, density and urban form*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.

- Kristensen, A.** (2001). *Sustainable Building Materials And Environmental Assessment Methods*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Kulkarni, H.** (2003). *Cooling without Air Conditioning for Office Buildings in Hot-Dry Climate in India*. MA Dissertation. AA E+E, London.
- Loeb, R.** (1998). *Small Scale Settlements in the Amazon Rainforest*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Mahadevan, P.** (2005). *Retrofitting of buildings with focus on housing*. MA Dissertation. AA E+E, London.
- Maladkar, A.** (2004). *Transitional Post-Disaster Shelter*. MA Dissertation. AA E+E, London.
- Marcondes, M.** (2004). *Double Skin Façades in Sao Paulo*. MA Dissertation. AA E+E, London.
- Martinez-Canavate, C.** (2004). *Atrium Spaces*. MA Dissertation. AA E+E, London.
- Martins, L.** (2002). *Selling Cities As Eco-Systems*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Mas, M.** (2004). *Museum Design*. MA Dissertation. AA E+E, London.
- Massa, H.** (1997). *The Space in Between: Climatic control in public open spaces*. MA Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.
- Mercantini, C.** (2001). *Smart Facades For Mixed-Use Buildings In Northern Europe*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Mehrotra, M.** (2004). *Geometries for Tall Structures*. MA Dissertation. AA E+E, London.
- Moura, R.** (1998). *Bioclimatic Retrofitting on Southern Portuguese Vernacular Architecture: a Case study*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Muench, B.** (1997). *Zero Emission Housing*. MA Dissertation (\*). Environment & Energy Studies Programme, AA Graduate School, London.
- Papagiannopoulos, G.** (2002). *Evaporative Cooling Using Porous Ceramic Bricks*. MA Dissertation (\*). Environment & Energy Studies Programme. AA Graduate School, London.
- Pasquero, C.** (2002). *Human And Environmental Behaviour In Urban Context*. atterns analysis at the scale of Highbury and Islington neighbourhood, London). MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Perez Rubio** (2000)). *Living And Breathing In Suburbia*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Pilliner-Reeves, C.** (2003). *Use of Public Non-Places for Urban Regeneration-with case study in London*. MA Dissertation. AA E+E, London.
- Poletto, M.** (2002). *Modelling Urban Rhythms*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Pratt, K.** (2004). *Hooke Park*. MA Dissertation. AA E+E, London.
- Pyrek, A.** (2005). *Adaptable Building Materials for Climatic Design Applications*. MA Dissertation. AA E+E, London.
- Rastogi, M.** (1994). *Optimization and Choice. The Geometry of Solar Space*. Environment & Energy Studies Programme, AA Graduate School, London.
- Rentmeister, K.** (1997). *Design Objectives for Office Buildings*. MA Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.
- Romero, M.** (1998). *Analysis of the Main Dispersal Assembly Space in the Context of Educational Buildings*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Rosa, R.** (1998). *Retrofitting Multi-Storey Residential Buildings in Lisbon with Bioclimatic Strategies*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.

- Rossi, D.** (2005). Bioclimatic Restoration of Vernacular Architecture in Tuscany, Italy. MA Dissertation. AA E+E, London.
- Rothhahn, K.** (1998). Form Follows Flow – Or the Potential to Optimise Ventilation Through the Shape of a Building. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Sabherwal, A.** (2003). Roof Cooling Strategies for the Climate of Delhi. MA Dissertation. AA E+E, London.
- Sanabria, J.C.** (2002). *Small-Scale Housing Unit Prototype For Costa Rica*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Sandiumenge, T.** (1998). Retrofitting Flat Roofs for Natural Cooling. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Santisteban, F.** (1998). A Study of the Thermal Effect of Green Areas on the Urban Microclimate and its Applicability to Monterrey, Mexico. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Schirber, A.** (2001). *Toward Intelligent Temporary Shelter*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Schuster, H.** (1998). Warehouse 12. A Case Study to Examine the Potential of Environmental Strategies in Reusing 19<sup>th</sup> Century Industrial Buildings. MA Dissertation (\*). Environment & Energy Studies Programme. AA Graduate School, London.
- Senatore, A.** (2001). *Natural Ventilation Strategies In Retrofitted Office Buildings*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Sgoutas, D.** (1999). Retrofitting Old Warehouses. With design proposals for a building in the city of Xanthi in Northern Greece. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Shum, K.** (1998). In Search of the 'Sustainable' Atrium. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Skourtis, G.** (2001). *Environmental retrofitting of interwar social housing in greece*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Smith, A.** (2004). Mixed-Use Urban Renewal Projects in Climates with Extreme Seasonal Variations. MA Dissertation. AA E+E, London.
- Somuncu, Y.** (2002). *How can buildings teach in terms of environment & energy issues. A case study of the Inanc Lisesi Gebze Campus in Turkey*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Stavropoulou, E.** (1997). The Potential for Low Energy Industrial Architecture in Greece: Practical applications in existing buildings. MA Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.
- Sun, F.** (2005). Achieving Suitable Thermal Performance in Residential Buildings in WuHan, China. MA Dissertation. AA E+E, London.
- To, K.F.** (2001). *Transformations Of Our Cities: new approaches in urbanism*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Tobe, Y.** Retrofitting Office Buildings in Tokyo. MA Dissertation. AA E+E, London.
- Ulguray, D.** (2001). *Environmental Attributes Of Double Facades*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Vatanopas, N.** (2005). Enhancing Thermal and Visual Comfort with Internal Fittings and Finishings. MA Dissertation. AA E+E, London.
- Wadhvani, P.** (1999). The Shopping Environment. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.

- Wang, D.** (2001). *Sunny Side-Up: building integrated photovoltaics on mixed-use urban housing in Los Angeles*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Zavliaris, A.** (2000). *Aegean Urban Routes*. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Zou, J.** Affordable Comfort for Housing in Beijing. MA Dissertation. AA E+E, London.
- Zouzoulas, E.** (1999). Building light in hot and dry climates. MA Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.



**MPhil / PhD****1990-**

- Ahmed, K.S. (1996). Approaches to Bioclimatic Urban Design for the Tropics with Special reference to Dhaka, Bangladesh. PhD Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.
- Ali, Z. F. (2000) Environmental Performance of Buildings By Louis Kahn And Le Corbusier In India And Bangladesh. PhD Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Almeida, J. (1994). Public Space Utilisation and Environment: a study of large educational buildings. PhD Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.
- Ayssa, A. Z. (1995). The Thermal Performance of Vernacular and Contemporary Houses in Sana'a, Yemen. PhD Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.
- Bittencourt, L.S. (1993). Ventilation as a Cooling Resource for Warm-Humid Climates. PhD Dissertation, Environment & Energy Studies Programme, AA Graduate School, London.
- Cadima, P. (2000) *Transitional Spaces*. PhD Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Cantuaria, G. (2001) *Trees And Microclimatic Comfort*. PhD Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Da Costa Silva, H. (1994). Window Design for Thermal Comfort in Domestic Buildings in Southern Brazil. PhD Dissertation, Environment & Energy Studies Programme, AA Graduate School, London.
- De Almeida, D. (2006). Guidelines for the Design of Pedestrian Areas in an Urban Context according to the Local Microclimate towards outdoor comfort - The case of the North/East Region of Portugal. PhD Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.
- Diaz, C. (1994). Optimisation of Thermal Mass for Indoor Cooling. PhD Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.
- Dobrin, M. (2001) MPhil Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Dutra, L. (2012). Design Process and Environmental Information. PhD Dissertation. AA Graduate School.
- Galor, D. (1992). The Impact of Geometric Parameters of Domestic Buildings in the UK on their Space Heating Requirements. The semi-detached house. MPhil Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.
- Garcia Chavez, J.R. (1989). The Potential of Beam Core Daylighting for Reducing the Energy Consumption of Artificial Lighting and Air-Conditioning in Hot-Arid Regions of Mexico. PhD Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.
- Hughes, M. (1995). Home: Space, Form and Perception. MPhil Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.
- Goulart, S. (2005). Thermal Inertia and Night Ventilation Techniques for Residential Buildings in Southern Brazil. PhD Dissertation. AA E+E, London.
- Jimenez Alcala, B. (2002) Environmental Aspects Of Hispano-Islamic Architecture. PhD Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Kim, D.K. (2012). Climate Interactive Building Design in a Korean Climate. PhD Dissertation. AA Graduate School, London.
- Kwon Wong, C. (2012). Transitional spaces: the role of sheltered semi-outdoor spaces as microclimate modifiers on school buildings in the UK. PhD Dissertation. AA Graduate School, London.
- Mallick, F. (1994) Thermal Comfort for Urban Housing in Bangladesh. PhD Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.

- Martin del Guayo, P. (2014). Environmental Perception- climate in urban public spaces. PhD Dissertation. AA Graduate School, London.
- Massa, H. (2002). Urban Aerodynamics. PhD Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Phillips, C.A. (1998). Sustainable Place. A place of sustainable development. PhD Dissertation, Environment & Energy Studies Programme. AA Graduate School, London.
- Quintino, G. (2002). Environmental Aspects Of Traditional Building Techniques In South-Western Portugal. PhD Dissertation. Environment & Energy Studies Programme. AA Graduate School, London.
- Rihl, F. (1998). Daylight and Visual Perception. An investigation of retrofitted building elements for the enhancement of daylight and the modelling of objects with reference to the Brazilian context. PhD Dissertation, Environment & Energy Studies Programme. AA Graduate School, London.
- Salleh, E. (1994). Tropical Urban Outdoor Environment and Human Thermal Comfort. PhD Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.
- Schiano-Phan, R. (2005). The Development of Passive Downdraught Evaporative Cooling Systems Using Porous Ceramic Evaporators and their Application in Residential Buildings. PhD Dissertation. AA E+E, London.
- Serghides, D. (1994). Zero Energy for the Cyprus House. PhD Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.
- Silva, P. (1992). Searching for Thermal and Visual Comfort in Housing. Recife, Brazil. MPhil Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.
- Sun, F. (2012). Achieving Suitable Thermal Performance for Residential Buildings in Different Climates of China. AA Graduate School, London.
- Tabb, P. (1990). The Solar Village Archetype. A study of English village form applicable to energy-integrated planning principles for satellite settlement in temperate climates. PhD Dissertation. Environment & Energy Studies Programme, AA Graduate School, London.