ARCT4430 ARCHITECTURAL TECHNOLOGY 4

Architecture, Technology, Structures & Services
Coordinator: Gary Marinko

ARCT4430: Architecture, Technology, Structures and Services
Weighting is 6 points
ARCT4430 Architectural Technology 4

ARCHITECTURE, TECHNOLOGY, STRUCTURES AND SERVICES
The availability of units in Semester 1, 2, etc. was correct at the time of going to press but may be subject to change. For the most up-to-date information click on the Timetable link below.

Credit: 6 points  Availability: Semester 1 (See Timetable)  Old unit code: 252.430

Outcomes: Students will be introduced to specific parts of the Building Code of Australia (BCA) and their impact on complex building construction. They will develop knowledge and understanding of the various technical and construction systems involved in complex, highly serviced buildings, their interactions and their integration into the design and building process, together with a critical ability to analyse and report on buildings and systems and the interaction of these.

Content: This unit investigates the issues involved in the integration of various technical and construction systems in building as required by the BCA. A series of lectures will highlight how the specific requirements of the BCA vary according to the class of building and how a variety of solutions are available to meet these requirements. Students will be asked to consider the interaction of these technical requirements with aesthetic design intent; this balance is at the core of architecture.

Running parallel to the lecture program are site visits to buildings where students view the implementation of the BCA requirements in the construction detailing and the integration of building technology and then speculate on the reasons for these design decisions and the success or otherwise of these strategies.

Assessment: This consists of the submission of separate projects. A diary/report to record and comment on the site visits and a report/seminar on the lectures is presented and submitted. Attendance at all lectures, tutorials, seminars, site visits and workshops is required and attendance is recorded at each session. Students bring specified work to required sessions for presentation and feedback from the tutors.

To achieve a pass in this unit a student must pass all components of the unit. If one of the components is not passed, the maximum possible grade is 40 per cent.

Unit Co-ordinator(s): Gary Marinko

Location: UWA (Crawley)   Mode: on-campus

Unit Rules:
Contact hours—lectures/seminars: 2 hrs per week; site visits: 2 hrs per week


Note: Students are required to have a certified protective work helmet and appropriate clothing including footwear to wear on the site visit.

Statutes
Building Code of Australia (BCA) and Australian Standards
The BCA regulates the design and construction of buildings in Australia. The BCA references more than 120 Australian Standards. Copies of all Australian Standards are available online using any CygNET terminal in the Education, Fine Arts and Architecture (EDFAA) Library at http://www.standards.com.au/. The electronic copy of the BCA in EDFAA also contains links to the standards referenced in the BCA.
UNIT DESCRIPTION AND OBJECTIVES

A: Lecture and Site Visit Program

This unit investigates the issues involved in the integration of various technical and construction systems in building as required by the BCA. A series of lectures will highlight how the specific requirements of the BCA vary according to the class of building and how a variety of solutions are available to meet these requirements. Students will be asked to consider the interaction of these technical requirements with aesthetic design intent; this balance is at the core of architecture.

A series of lectures will give an overview of the BCA and its effect on architecture. Running parallel to the lecture program are site visits to buildings where students view the implementation of the BCA requirements in the design, detailing and the integration of building technology and then speculate on the reasons for these design decisions and the success or otherwise of these strategies.

The outcomes include an analysis of specific parts of the BCA to develop knowledge and understanding of the various technical and construction systems involved in complex, highly serviced buildings, their interactions and their integration into the design and building process, together with a critical ability to analyse and report on buildings and systems and the interaction of these.

B: BCA Compliance Program

The outcomes will include a developed knowledge of the nature of how the BCA impacts on the design of a project; the accommodation of these requirements within a design project; and the representation of this compliance in the form of drawings, diagrams and reports.

Students will be required to take their current studio project (if students are not taking a studio then a previous studio project maybe used with the agreement of the unit coordinator) and present a PowerPoint presentation that describes the compliance of their building with specified sections of the BCA. From this presentation and incorporating any valid critique from the seminar a report is to be produced. This document is to be of the quality of a professional academic report.

UNIT COMMUNICATION

All announcements will be made at lectures, tutorials, and site visits. Students should also look for notices on the fourth year notice board for last minute changes to the program.

Announcements and communication between staff and students may also occur by email, so all students should ensure:

- that they activate their Pheme account
- that they check their account regularly (at least weekly)
- that they communicate with University staff ONLY through their student email account. (Staff has been advised not to respond by email to any other addresses.)

STAFF

Lecture and Site Visit Co-ordinator: Gary Marinko
- ph: 6488 2797
- fx: 6488 1082
- e: Gary.Marinko@uwa.edu.au
- Contact times outside of tutorials: 1.00pm -2.45pm Wednesdays
UNIT CONTACT HOURS

• Lecture program: Week 1 – week 11: Wednesdays, 9.00am – 11.00am &
  11.00am - 1.00pm. ALVA G22
• Workshops: Week 7 –week 11: Wednesdays, 9.00am – 11.00am &
  11.00am – 1.00pm. ALVA G22
• Site visits: Week 2 – week 10: Tuesdays, 4.00pm – 6.00pm.

Students will be expected to attend all sessions. Feedback on your work will only be provided within these sessions’ times.

UNIT OUTLINE

A: Lecture Program

This program consists of lectures and site visits as set out in the list attached.

The Lecture program comprises all lectures and site visits.

B: BCA Compliance Program

This program consists of a series of workshop sessions, at which the necessary information for the BCA Compliance project is presented to students; and students will present their work on the compliance of their studio project with specific sections of the BCA. Final the students will submit a report setting out the compliance of their project to these specific sections of the BCA.

This workshop program comprises all lectures and workshops.

ASSESSMENT

Lecture and Site Visits (40% of final grade)

The assignment will take the form of a diary/report which will cover the site visits. It will record the progress of the construction process of the buildings visited; analysing in words, photographs and drawings the design solutions used to comply with the BCA, the contractual framework of the project, the detailing, the technical systems, the sequence of the building program, and the integration of all these aspects into making a building. The key area is the success or otherwise of the architectural strategies in making a piece of Architecture is to solve these conflicting requirements. You must make comment on this. References back to the content of the lecture series are encouraged. Please note that this is to be your own work from your own observations on site, the paraphrasing of shared notes is not acceptable and is plagiarism.

The final report are to be composed graphically to standard one would expect from visually aware Architects

Final Diary Submission
Submission date: 11.00am, 14th May 2006
Format: A4, bound report
Weighting: 40%
BCA Compliance presentation and seminar (60% of final grade)

The assignment will comprise a seminar where the student will give presentation showing the compliance of their studio project to specific sections of the Building Code of Australia. The student is to also submit a detailed report based on the seminar and the criticism from the seminar. The precise details of this presentation and submission will be given to students during semester.

Seminar
Seminar date: To be announced.
Format: PowerPoint
Weighting: 30%

Documentation
Submission date: 3.00pm, 18th May 2006
Format: See project brief
Weighting: 30%

Work Timetable

It should be noted that both the diary/report and the services drawing portfolio will benefit from steady and consistent work. This is self evident with regards to the diary/report. To produce a competent set of services drawings requires continual reassessment of earlier work and a continuing interaction with the tutors and the consultants who are assisting in the program. It is almost inconceivable that an acceptable set of documents could be submitted without this consultation process. It is strongly suggested that students devise a weekly work program and then stick to it.

NOTE: To achieve a pass in the ARCT4430 unit a student must pass all components of the unit. If one of the components is not passed then the maximum possible grade will be 40%.

ATTENDANCE & PERFORMANCE

Attendance at all lectures, tutorials, seminars, site visits and workshops is expected; attendance will be recorded at each session. In the case of the design and documentation workshops attendance means that the student brings work to the session and presents this work to the tutors either individually or as part of a group crit session. Your attention is drawn to the regulations below.

Requirements for Completion of Unit
1.2.1.15(1) To complete a unit a student must—
(a) meet the faculty’s requirements with respect to attendance at prescribed classes, lectures, seminars, tutorials, practicals and clinical practice, and to the sitting of examinations; and
(b) complete assignments and other prescribed work of the unit at a standard acceptable to the faculty; and
(c) obtain a grade of Pass or higher for the unit.
(2) A faculty, on the recommendation of the relevant head of school, may exempt a student from attendance or from part of the prescribed work.

Failure to Attend or to Complete the Prescribed Work of a Unit
1.2.1.16 A student who fails to attend or to complete work in accordance with Rule 1.2.1.15(1)(a) or (b) may be prohibited by the faculty from undertaking further study or examinations in the unit concerned.

Faculty Policy and Procedures
Policy and Procedural information for the Faculty is available on the web at www.alva.uwa.edu.au/current_students/forms_and_policies
RETURN OF STUDENT WORK

All students work submitted for assessment will be returned to students during scheduled lectures within four weeks of its submission.

SITE VISITS

Students will visit selected buildings under construction during the semester. If there is to be a change to the scheduled site visit the address of the new site visit will be announced at the Wednesday tutorial in the week prior to the visit. If the building sites are within the metropolitan region, students will be asked to meet at the site. If the sites are outside the metropolitan region, the School will arrange communal transport.

Students should wear appropriate clothing when visiting building sites. Appropriate clothing consists of solidly constructed closed and flat shoes, trousers or shorts and well-fitted tops. Open toed shoes and sand shoes will not be accepted and students will not gain entry to sight with these shoes. Hats should be worn to offer protection from UV radiation. All sites may require students to wear protective helmets; students needing to purchase a protective helmet may do so from Alsafe Safety Industries Pty Ltd at 177 Bannister Road, Canning Vale..

UWA has Student Plan Personal Accident Insurance cover for architecture students on course-required practicum. Details of the cover are available from the UWA Insurance Officer on telephone 6488 3214 or from the UWA Internet site on:

http://www.safety.uwa.edu.au/policies/student

SITES

New Federal Law Courts
COX Architects
St. Geoges terrace, Perth

Grant Street House
Simon Rodrigues Architects Pty Ltd
7 Grant Str, Cottesloe

Scotch College Hall
Taylor Robinson
Scotch College

IKEA Store
Hassell
Osborne Park
Entry via the Cedric Street off ramp of the Mitchell Freeway.
LECTURE AND SITE VISIT ABSTRACTS

Week 1: Introduction to lecture series by Gary Marinko, 28/2/07, G22, 9.00 am – 11.00am
Week 1: Introduction to the site visits program by Gary Marinko and John McLean, 28/2/07, G22, 11.00 am – 1.00pm

Week 2: Site visit to the Scotch College Hall, 6/3/07, 3.00pm – 6.00pm
Week 2: BCA Lecture by Gary Marinko, 7/3/07, G22, 9.00 am - 11.00 am.

Week 3: Site visit to the Federal Law Court, 13/3/07, 3.00pm – 6.00pm
Week 3: BCA Lecture by Gary Marinko, 14/3/07, G22, 9.00 am – 11.00am

Week 4: Site visit to the Cottesloe House, 20/3/07, 3.00pm – 6.00pm
Week 4: BCA Lecture by Gary Marinko, 21/3/07, G22, 9.00am – 11.00am

Week 5: Site visit to the IKEA Store, 27/3/07, 3.00pm – 6.00pm
Week 5: BCA Lecture by Gary Marinko, 28/3/07, G22, 9.00am – 11.00am
Services Documentation Workshop 2, 28/3/07, G22, 11.00am – 1.00pm

Week 6: Site visit to the Scotch College Hall, 3/4/07, 3.00pm – 6.00pm
Week 6: Prosh Morning: No workshops 4/4/07

MID SEMESTER BREAK

Week 7: Site visit to the Federal Law Court, 17/4/07, 3.00pm – 6.00pm
Week 7: BCA Lecture by Gary Marinko, 18/4/07, G22, 9.00am – 11.00am
BCA Compliance Workshop, 18/4/07, G22, 11.00am – 1.00pm

Week 8: Site visit to the Cottesloe House, 24/04/07, 3.00pm – 6.00pm
Week 8: ANZAC Day: Lectures and workshop to be rescheduled, G22, 9.00am – 11.00am.
BCA Compliance Workshop to be rescheduled, G22, 11.00am – 1.00pm

Week 9: Site visit to the IKEA Store, 1/5/07, 3.00pm – 6.00pm
Week 9: BCA Lecture by Gary Marinko, 2/5/07, G22, 9.00am – 11.00am
BCA Compliance Workshop, 2/5/07, G22, 11.00am – 1.00pm

Week 10: Site visit to the Federal Law Court, 8/5/07, 3.00pm – 6.00pm
Week 10: BCA Lecture by Gary Marinko, 9/5/07, G22, 9.00am – 11.00am
BCA Compliance Workshop, 9/5/07, G22, 11.00am – 1.00pm

Week 11: Site Diary/Report Submission, Resource Room, 14/5/06, 11.00am
Week 11: BCA Lecture by Gary Marinko, 16/5/07, G22, 9.00 am - 11.00 am
BCA Compliance Workshop, 16/5/07, G22, 11.00am – 1.00pm
Week 11: **BCA Compliance Report submission**, (18/5/06, Resource Room, 3 pm)

NOTE: There maybe changes to the program during the semester, these will be announced either in the preceding weeks lecture or posted on the 4th year notice board. Ensure that you check notice board the day before site visits.
RESOURCES FOR MATERIAL AND CONSTRUCTION INFORMATION

The building industry is the resource and “library” from where you will get the information to interrogate your building design. Students are expected to carry out research on materials and details from within the building industry. This will involve contacting material and component supply companies and obtaining product catalogues and samples.

READINGS, RESOURCES AND LIBRARIES

These readings are taken from the Building Code of Australia or BCA, Australian Standards, the textbooks and other books listed in the bibliography. The bibliography contains books relevant to architectural technology in Australia, the United States and the United Kingdom and books appropriate to each English-speaking region are included.

It should be noted that when researching details you must always reference them to the local conditions. It is pointless detailing a building in such a way that it cannot be built in Perth. If you find a detail or method of construction from an overseas source then you must adapt it to the local conditions. This will involve not just finding a local alternative but analysing the detail to see if it is suitable to our climatic and environmental conditions. Finally it must conform to the BCA and Australian Standards.

Building Code of Australia & Australian Standards

The BCA regulates the design and construction of buildings in Australia. Its bibliographic details are:

Students should note that the BCA is available in the Resource Room on paper and online in EDFAA.

The BCA references more than 120 Australian Standards. Copies of all Australian Standards are available on-line using any CygNET terminal in EDFAA, at www.standards.com.au or their bookshop at 165 Adelaide Terrace, Perth. The electronic copy of the BCA in EDFAA also contains links to the standards referenced in the BCA.

Bibliography

The following bibliography has been compiled of sources of direct relevance to the construction and technology of small lightly-serviced buildings in Australia, the United States and the United Kingdom. Numbers in brackets give the EDFAA call number unless otherwise stated. The bibliography is not comprehensive and students seeking more or detailed information should consult the following specialised subject headings:

Preliminary Reading


Dictionaries


Van Mansum, C. J. *Dictionary of Building Construction in Four Languages*, Elsevier, Amsterdam, 1959. (FIZ 8690.3)
Handbooks

Handbooks contain relevant information, particularly anthropometric data, for architects arranged by building type. Some like the New Metric Handbook contain information on structure and materials. There is no Australian handbook of architects data, so architects in this country generally use the British New Metric Handbook or the Neufert’s Architects’ Data. American handbooks obviously contain relevant information but there use is limited by their use of Imperial dimensions.


Building Construction

Although some of the books listed may be out of date in various respects, they all contain valuable information on, for example, traditional timber construction. Such information, and indeed the superseded information, can be vital when conservation and preservation projects are being undertaken.


McAdam, P S. Architectural Concrete, Civil Engineering Department, QIT, Brisbane, 1982. (0721.0045 1982 ARC)

*Mitchell's Building Construction*, five volumes, Batsford, London:

*Everett, A. Materials (FIZ 691 1970-2)*


*Pegrum, R. Details in Australian Architecture*, RATA Education Division, Canberra, 1984. (0720.284994 1984 DET/1)


*Principles of Modern Building*, Department of Scientific and Industrial Research (Building Research Station), London, 1959. (690)


**Individual Architects and Buildings**

There is an enormous amount of information published about individual architects and their buildings in monographs and journals. However much of this material ignores the technological aspects of the work; consequently students seeking technical information on particular architects or works should search by name and title first, and then by subject. The archives on major architects can be very useful (e.g. Le Corbusier) and the Architecture in Detail series by Phaidon is excellent. Unfortunately little in detail is published on Australian architectural technology other than on the work of Glenn Murcutt. The books that follow are an example of what is available.

Architecture in Detail, Phaidon Press

*Alvar Aalto, Town Hall, Saynatsalo (0725.13092 AAL)*

*Alvar Aalto, Villa Mairea (0728.37092 AAL)*

*Charles & Ray Eames, Eames House (0728.372092 EAM)*

*Norman Foster, Renault Centre (0725.40942 1991 REN)*

*Foster Associates, Willis Faber & Dumas Building (0725.230942 1993 WIL)*

*Greene & Greene, Gamble House (0728.80973 1992 GAM)*

*Herron Associates, Imagination Headquarters (0725.23092 HER)*

*Louis I. Kahn, Kimbell Art Museum (0727.7092 KAH)*

*Louis I. Kahn, Salk Institute (0727.5574 1993 SAL)*
