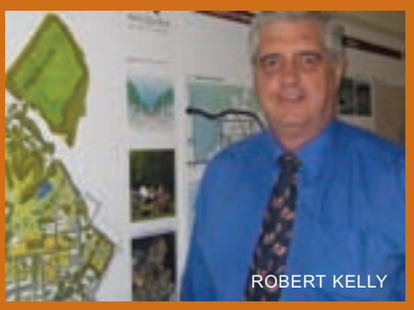
insidenewsletter

featuring

learning environments
space management
open offices
green dinosaur
capital assets
stephenson walk
zero waste
camatic
ontera
trane

autumn/winter 2006

president's message


ROBERT KELLY

Welcome to the latest issue of the TEFMA ***inside****newsletter*. As always, I encourage you to take the time to read through the many excellent articles in this issue, and to follow up with the authors in any area where you may have a personal or professional interest.

By the time you receive this newsletter, you should have taken delivery of the latest TEFMA Benchmark Survey Report. This edition of the report is based on 2005 data. I am delighted to report that this year has seen a record number of participants, with a total of 59 institutions submitting data. This demonstrates the growth of TEFMA, and the value our membership places on this very valuable publication. The publication has grown from a humble, but inspired launch in the early 1980s with a handful of participants.

The current format was launched in 1994 when 22 institutions participated. Here at Macquarie University, I can attest that interest goes beyond the facilities area, with my Vice-Chancellor always keen to receive a copy, and a breakdown of how we are travelling compared to other 'like' universities. Data integrity is vital to the success of these reports. This year, the Benchmark Survey Report will again be independently audited by external consultants Currie and Brown to ensure that both the quality of the process and the data collected and compiled remains high and consistent with definitions.

Still on publications, I would draw your attention to the latest issue of the APPA Facilities Manager magazine. Of particular interest is the article titled 'The Impact of Facilities on Recruitment and Retention of Students', authored by David Cain and Gary Reynolds. The article summarises an extensive research project undertaken to evaluate the impact the facilities and campus environment has on the decision making of potential and current students. It makes fascinating reading. The full research outcomes will be published by APPA, and will be launched at the APPA conference in Honolulu this July. The article can be accessed through the APPA website at www.appa.org.

The outcome of elections for the 2006–07 TEFMA Board will also be known by the time this newsletter gets to you. It was encouraging to see the quality of those who nominated. Again, this reflects the growing levels of member participation, and can only be a positive as we move forward. I congratulate those successful in being elected, and encourage those who missed out this time to retain their interest and to try again next year.

The next few months will be busy, with the New Zealand workshop being held in early July, and the Tertiary Education Management Conference (TEMC) taking place in Sydney in late August. Registrations are now open for the TEMC, and I would encourage as many of you as possible to get there. As a member of the Organising Committee, I am delighted at the quality of papers submitted, and can guarantee no-one will be disappointed with the venues for both the formal and informal events. You can access the TEMC website through the TEFMA homepage to view the program and register online.

As this will be my last President's Message, I would like to take the opportunity to thank the 2005–06 Board for their hard work and support. However, any association, especially a voluntary one, is only as strong as its members. It has been great to see the level of participation and enthusiasm from those involved in putting together the various workshops, conferences and publications. TEFMA continues to mature, and we can all be proud of the quality and diversity of the services being provided, all of which are aimed at making a real contribution towards the sector.

tefma scholarships – apply now

Are you interested in getting assistance to develop your skills or the skills of your staff? Apply for a TEFMA Scholarship! TEFMA provides a number of scholarships that cater for a range of disciplines and levels working in the tertiary education facilities management sector. Scholarship winners have invariably found their experiences rewarding in so many ways. You will have read reports from various scholarship winners in ***inside****newsletter*. For more details on each TEFMA Scholarship, please check out the TEFMA website: www.tefma.com/education/scholarships/index.jsp

learning about learning environments

TEFMA/Zauner Construction Travel Scholarship 2005

Diana Jones is a Senior Project Architect with Lyons Architects in Melbourne. In addition to her architectural practice, Diana tutors in architectural design at RMIT and for the Royal Australian Institute of Architects 'Practice of Architecture Learning Series'.

Diana studied at UWA in Perth before moving to Melbourne in 1995 where she has worked on a broad range of public and institutional facilities, including the National Museum of Australia with ARM. In 2002 she joined the enthusiastic team at Deakin University, to pursue an interest in campus master planning and the design of educational facilities. At the start of 2006, she left Deakin to join the innovative and skilled team at Lyons. Current projects include the Hedley Bull Centre for World Politics at ANU.

Diana was co-recipient of the TEFMA/Zauner Construction Travel Scholarship in 2005. A full report of her study tour is available on the TEFMA website, including photographs and information about many of the facilities visited: *www.tefma.com/whatsnew*

The proposal

When I started working in the Property Services Division at Deakin I was fortunate to be able to attend some TEFMA events, meeting other facility managers, and hearing about other campuses and facilities and aspects of their management and operation. Coming from a background in architectural practice it was a broad and steep learning curve, and I was keen to visit and experience different campuses and find out more. How are similar issues tackled, and what different hurdles do we face? The TEFMA/Zauner Construction Travel Scholarship provided me with a fantastic opportunity to do this.

In my position at Deakin I was involved in campus master planing, developing design standards, and briefing and preliminary design work for new projects. Like other universities, tightening budgets, the need to maximise space utilisation and efficiency, and increasing levels of discussion about how teaching was, would or could be delivered, were influencing capital works of all sizes.

The topic for my scholarship, developed in consultation with my supervisor at Deakin, Mr Wayne Reid, was an area we were keen to learn more about, and which keyed into the theme for the TEFMA workshops conducted in 2005. It related to a book written by Lennie Scott Weber, published by SCUP, titled *In Sync: Environmental Behaviour and the Design of Learning Space*, and proposed to examine:

- the types of learning environments we currently provide
- what issues are driving the design of new or refurbished teaching spaces, and
- how our customers are using these spaces.

Through the study I identified a range of key issues for consideration in the design of new teaching and learning spaces – learning that I'm already applying to projects in my current role at Lyons.

The study tour

Under the scholarship I attend the TEFMA Future Learning Environments workshop in Brisbane in February 2005, and also toured a number of universities in October and November 2005. The facilities I visited were based on projects I'd read about or had been discussed in the Brisbane workshop, and focused on general teaching spaces, although some special purpose and laboratory spaces were visited. Full details are available in my tour report on the TEFMA website: www.tefma.com/PDFs/StudyTour Report_DianaJones.pdf

The workshop enlightened to me the breadth of the issues and challenges to the creation of effective future learning spaces, and also demonstrated that there is a range of possible responses or approaches that can be taken. ▷

UQ COLLABORATIVE SPACE

THE CLASSROOM CAN BE BROKEN UP INTO SEPARATE 'PODS' FOR GROUP EXERCISES BY DROP-DOWN SCREENS AND SET LIGHTING LEVELS.

CURTIN STUDENT LOUNGE

THE PROVISION OF GENERAL COMPUTER LABORATORIES WITH SUPPORT SERVICES AND FACILITIES CAN INCREASE THE TIME STUDENTS SPEND ON CAMPUS, AND PROVIDE LEARNING BENEFITS THROUGH 'MODE 3' INTERACTION.

▷ Discussions with facilities management staff (including staff with responsibilities for senior management, project management, design, timetabling, audiovisual services and information technology), plus some academics and teaching and learning support staff, covered many issues, which can be grouped into the following six key themes:

1 **Executive direction and strategic objectives:** relating to the impact that these policies and priorities have on the allocation of resources and performance objectives and assessment.

2 **Pedagogy:** including which learning modes are going to be used in teaching delivery, and considering both current practice and intended future practice.

3 **Space management:** regarding who 'owns' the space or is the primary user, and how space allocation is managed.

4 **Flexibility and adaptability:** to accommodate different types of learning activities in the one space, both within a single class and in different classes. How can spaces be reconfigured? Who physically does this, and how easy is it?

UQ TECHNOLOGY INTERFACE

THE TEACHER'S LECTERN PROVIDES TOUCH SCREEN CONTROLS FOR AUDIOVISUAL FACILITIES IN A RANGE OF PRESET MODES.

5 **Technology:** considering the type of technology that is most effective for the intended use of the space, what future technologies could be incorporated, and the ease of operation.

6 **User needs:** including the broader support and services that students and staff may need, such as kitchenette facilities, storage and after hours accessibility, and responding to changing student expectations.

One project that particularly stood out as addressing all these issues was the Collaborative Learning Centre, Building 47A at the University of Queensland's St Lucia campus. A visit to this innovative collaborative learning facility was included in the Brisbane workshop, when its construction was nearing completion. I visited again in November to find out how the space had been performing in use and learn more about how it operates.

Philip Taylor and Derek Powell provided me with a practical demonstration, and highlighted the importance of not only getting the building design right (including space per person, quality of light, air, acoustics, aesthetics and furniture selections), but also managing the facility in an effective way.

UNI OF SYDNEY MIXED MODE CLASSROOM

THIS CLASSROOM FORMAT, WITH GROUP TABLES AND PERIMETER FIXED COMPUTERS, HAS BEEN DEVELOPED FOR SPECIFIC USERS AND COURSES.

By controlling the allocation of bookings for each class to only a few weeks during semester, the number of students who experience classes in this collaborative format is maximised. Ongoing training and course support is also progressively increasing the number of staff who can use the space to its full potential.

UNSW REFURBISHED LECTURE THEATRE

OLD LECTURE THEATRES CAN BE RETROFITTED WITH NEW TECHNOLOGIES, HOWEVER, REFURBISHED LECTURE THEATRES MAY STILL RETAIN OLDER TECHNOLOGIES (SUCH AS BLACKBOARDS AND SLIDE PROJECTORS) WHERE USERS ARE UNWILLING TO TAKE UP NEW ALTERNATIVES.

Conclusions

Both the workshop and the tour were amazing learning experiences. As if to reinforce itself, the experience of the workshop, with a high level of discussion during breaks and over dinner, highlighted the benefits of 'Mode 3' (more social and informal) learning, which had been introduced in an early paper. On my tour, I was impressed with the time offered by the staff I met to show me around, answer my never-ending stream of questions, and engage in discussions that at times wandered well off the topic of teaching and learning spaces.

This willingness to engage in open discussion, compare notes, and share knowledge and ideas, which I experienced in both the workshop and my tour, is a real strength of the tertiary education facilities management sector and something that TEFMA is instrumental in supporting. The benefits of putting resources into undertaking and sharing research is overlooked in some other areas of the property industry, although for some design consultants this is a core part of their practice, and something I look forward to continuing through my career.

If you have any queries about my study tour report or new projects, I can be contacted at Lyons on: (03) 9600 2818 or at: diana.jones@lyonsarch.com.au.

new skills, of course

*Helen Moustacas has been employed by UNSW Facilities Management for 13 years. Helen manages the **e**-spot, which is a one-stop shop for student and staff identification cards, access, parking permits, outdoor functions, lost property and staff travelpasses. Helen gained a Certificate IV in Business (Frontline Management) in 2003.*

I was privileged to be chosen as one of two recipients of the 2005 TEFMA/OPUS Management Development Scholarships. This gave me the opportunity to attend the 'Leadership Development for the Facilities Manager' live-in course at Mt Eliza in Victoria.

This course encompassed all facets relating to leadership, from knowing yourself and the skills you bring to your position, to managing others. Some of the areas focused on included Change, Conflict, Negotiation, Creativity and Goal Setting. A team project on 'Outsourcing' was pertinent and particularly interesting as each team member had individual skills and had to negotiate with the others to define their role.

The participants were all from university Facilities departments and had many different roles. We had a wonderful group of people from all over A/NZ, which has created a great network of contacts.

It was a great week, exhausting at times. I found it a great learning curve and the course provided many skills to bring back to the workplace. I must also mention the food, which was five-star, and the accommodation and setting were fantastic.

space management systems

TEFMA/Zauner Construction Travel Scholarship 2005

Cameron Marshall, CAD Operator, Facilities Management Services, at the University of New England, Armidale, NSW, was the co-recipient of the TEFMA/Zauner Construction Travel Scholarship 2005. He visited four universities to look primarily at space management systems and also attended the annual TEM Conference in Perth, WA.

In the first instance, I would like to extend my sincere thanks to the TEFMA Board for awarding me the TEFMA/Zauner Construction Travel Scholarship 2005. I would also like to thank Naomi Nielsen, Deputy Director, Facilities Management Services, the University of New England, for encouraging and supporting me in my scholarship application. A final big thank you to all the universities I visited and their respective staff members, who gave so freely and openly of their time to share highly relevant experiences and ideas with me.

I visited four universities – Monash University in Victoria, Queensland University of Technology in Brisbane, Macquarie University in Sydney and the University of Tasmania, and also attended the annual TEM Conference in Perth, Western Australia. My main area of interest was space management systems: their implementation, integration, enhancement and reporting outcomes.

Monash University

Monash has developed in-house a space management system that uses software readily available off the shelf. The main database that stores all space data has been produced using Microsoft Access. As a result the database can be readily utilised and enhanced by almost anyone with a moderate knowledge of Access.

Monash converted all their building floor plans into the AutoCAD™ file format (.dwg). The space database was then linked to these AutoCAD drawings that graphically represent every room space on all campuses. This vital linkage allows data from the space database to be displayed as an overlay on the relevant AutoCAD drawing. The link also allows transparent updating of room areas in the database from AutoCAD should any rooms alter in size due to refurbishment works.

Monash has gone a step further and web-enabled their space management system, making it available to the wider university community via their intranet. The login security to the website ensures that people only see what is relevant to their area of management or concern.

Monash has developed a highly cost-effective and user-friendly space management system that achieves its objective of clearly displaying space data graphically to the wider university community. It gives up-to-date meaningful reporting to all who require it.

Queensland University of Technology

Queensland University of Technology (QUT) utilises Archibus/FM™ as its space management system across a number of campuses. The space management system is a core component of their Total Asset Management Information System, which is managed by the Standards and Records Unit of Operations. The Standards and Records Unit also manages the other core fields of the Graphical Information System (GIS) of site infrastructure and the building records archive, which is available through a database system entitled Alchemy.

Archibus/FM is considered to be the global de facto standard in space management and has been in operation for many years. Space management is but one of the many modules that make up Archibus/FM. Figure 1 illustrates other modules that are available and how other corporate systems can be integrated with Archibus/FM.

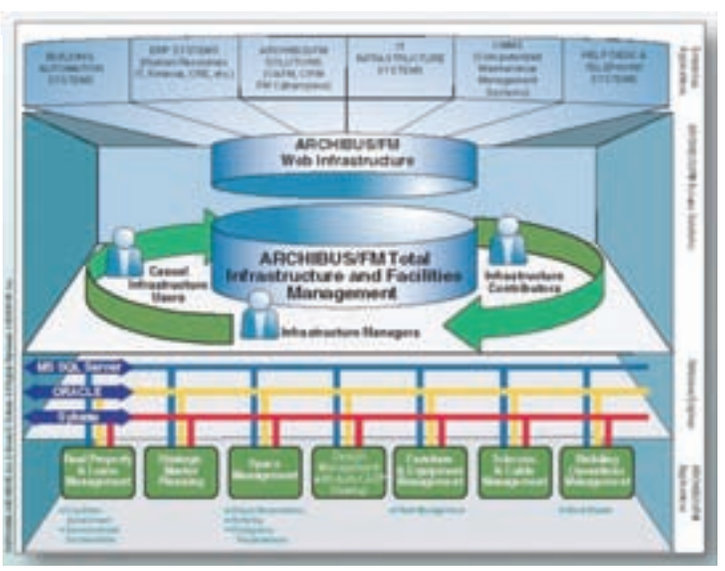


FIGURE 1: ARCHIBUS/FM™ MODULES AND SYSTEM INTEGRATION

QUT has also converted all their building floor plans to the AutoCAD file format and linked them seamlessly to Archibus/FM. The CAD overlay of Archibus/FM permits the user to work either entirely in the Archibus/FM environment or, if preferred, within AutoCAD. The latter choice may be preferable where an organisation has a highly trained AutoCAD employee. This option means little training is required for this individual to be up and running with Archibus/FM. The only notable difference in the AutoCAD user interface is an extra drop-down menu for the added Archibus/FM functionality. It is this intrinsic link with AutoCAD that provides assurance to the user that compatibility will not be an issue.

The space management system at QUT is a mature system that has been developed and enhanced over a number of years. What is evident in their system is the need to have appropriate standards and procedures in place to enable accurate and effective reporting outcomes. QUT has developed standards for CAD, GIS and space management that help ensure a consistent approach is maintained.

Macquarie University

At Macquarie University the Space Management Unit uses a Computer-Aided Facilities Management (CAFM) system called INSITE™. This is a suite of decision-support systems that includes database applications to store, track, analyse and report on the data about space, such as usage type and the organisations that the space is allocated to. It incorporates an electronic floor plan system designed for space management.

The INSITE suite provides two different options for integrating floor plans with the database: an AutoCAD™® ARX Overlay or Visual-FM. Floor plans are not required in order to implement INSITE, so an organisation can integrate electronic floor plans at their own pace. Both methods provide a seamless link between floor plans and the INSITE database. The Visual-FM technology, however, helps to reduce labour costs for creating, maintaining and linking floor plans.

The AutoCAD overlay allows the use of AutoCAD as an interface to the INSITE database. Figure 2 shows the familiar user interface of AutoCAD and the additional INSITE tools available from a drop-down menu. Space and Asset information in the database can be directly linked to the floor plans, and database operations like insert, delete, update and query can be performed directly on an AutoCAD floor plan. Area information is dynamically calculated from the floor plan and linked directly to the database. ▷

FIGURE 2: INSITE™ AUTOCAD™ OVERLAY INTERFACE

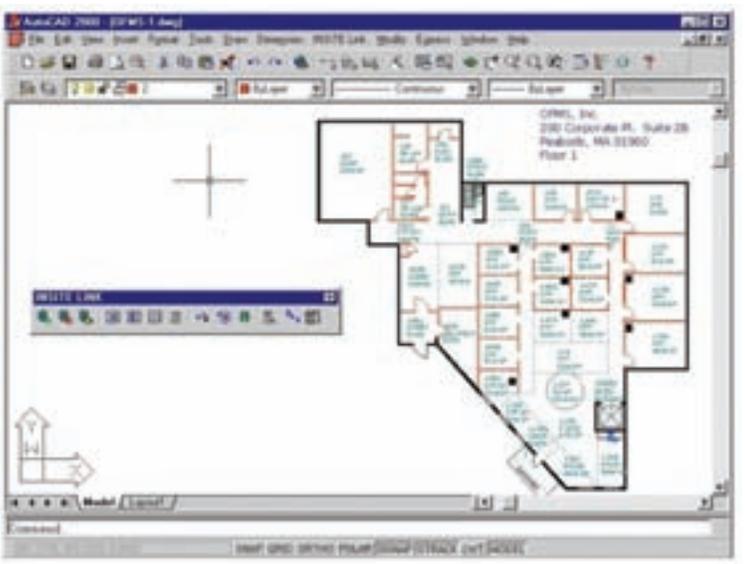


FIGURE 3: INSITE™ VISUAL-FM INTERFACE

▷ Visual-FM provides an efficient alternative method for creating accurate floor plans through digitising or precision input. Figure 3 shows the user interface of Visual-FM and the floating INSITE toolbar palette. Floor plans are created through placement of objects (walls, doors, windows, etc.), creating an intelligent drawing compatible with industry standards. Features include automatic area calculation without polylines, data validation, easy maintenance and a wide variety of query, display, plot and print capabilities. Each room on the floor plan is a unique graphic entity with associated, relevant information such as room number, use, assignment and area. Visual-FM can be implemented independently of INSITE if so desired.

University of Tasmania

The University of Tasmania (UTAS) manages its campus space with Archibus/FM. All of the building floor plans have again been converted to the de facto standard of AutoCAD. The information systems were of particular interest to me as they, like UNE, use Pinnacle as their Asset Management system. The integration of Pinnacle with Archibus/FM is one proposal UNE may pursue in striving for Total Asset Management.

The integration of two or more systems in any environment is never going to be a smooth and painless process. At UTAS, the integration of Pinnacle with Archibus/FM was achieved; however, reporting was inflexible and often meant certain data could not be extracted effectively. This inflexibility was compounded by the additional integration of their Timetable and Room Allocation (TARA) system and their Work Order Management system (Pronto). As a result of these issues, UTAS, through the Management Information and Reporting Unit (MIRU), pursued the course of developing a Data Warehouse.

MIRU developed a Data Warehouse by extracting data from each of the four main systems, namely Archibus/FM, Pinnacle, TARA and Pronto. These system extracts were transformed into Data Marts. External users could then, with the aid of appropriate software tools, search, extract and manipulate relevant information via a web portal.

UTAS found the advantages of creating a Data Warehouse were numerous and included the following:

- corporate data integrity and consistency was maintained
- streamlined reporting
- detailed data modelling and analysis
- reduced data maintenance
- enhanced strategic planning.

UTAS also made use of a software product named SIS-FM. SIS-FM is a GIS-based application specifically developed to meet the needs of Facilities and Space Planning Management. It allows the storage and retrieval of all data associated with facilities' assets. SIS-FM essentially sits over the Data Warehouse and extracts and displays requested data in a graphical format. The user can then view via embedded links the following items:

- site services such as sewer, stormwater, cabling
- building services such as lighting, power and mechanical layouts
- space management data
- grounds maintenance data
- room bookings data.

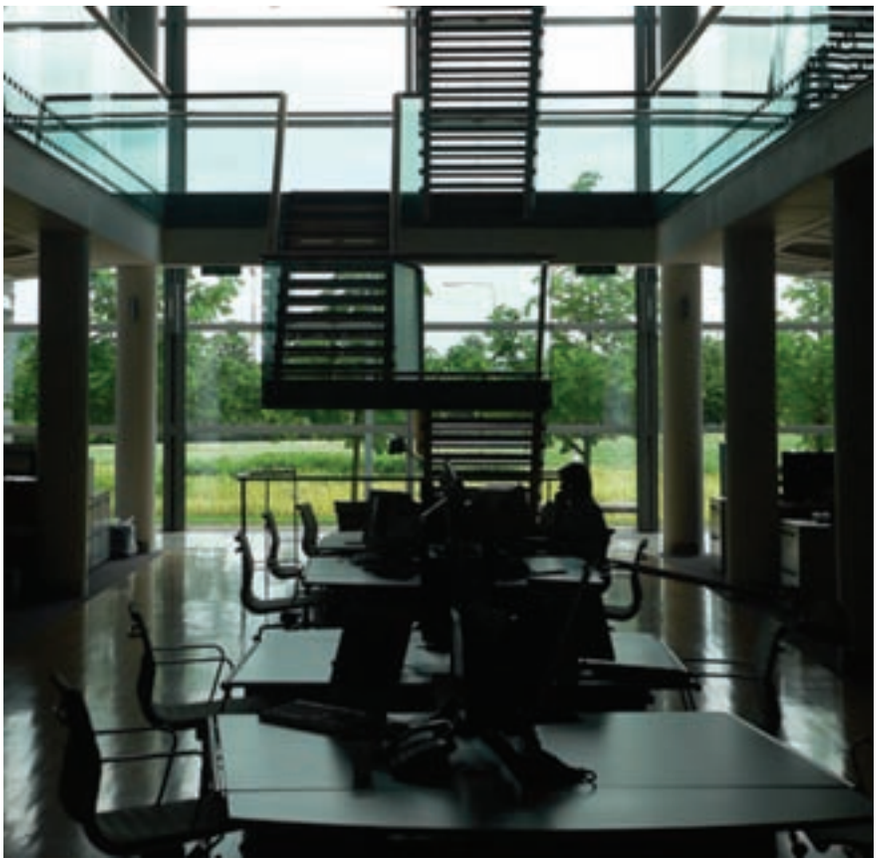
It is plainly evident that UTAS has invested a lot of time and effort into producing an information system capable of displaying almost anything the user requires in a multitude of output formats. This information empowers their staff to make informed decisions with regard to the management of their respective portfolios.

Annual TEM Conference

My attendance at the Annual Tertiary Education Management Conference held in Perth was certainly a highlight for me. The conference played host to a number of quality speakers from wide and varied backgrounds. It was certainly a sobering experience to hear how other universities deal with similar issues facing UNE. The advances in information management systems and new technologies were also evident in several presentations. When you can take something away from each session and apply it at your own place of employment, you know that the conference has been an outstanding success.

In summary, the opportunity to visit these universities and attend the Annual TEM Conference provided me with a valuable insight into contributing to the development of Space Management and Information Systems at UNE. I was extremely grateful to be able to meet and exchange ideas and experiences with other university colleagues. I would also like to thank them for the hospitality that was extended to me during my trip. To the TEFMA Board, thank you once again for this opportunity and I would like to encourage all TEFMA members to apply for a scholarship – the experience is invaluable. ◒

open space offices: do they really work?



Ana Sala-Oviedo is an honours graduate architect who works as an academic and educational planning researcher with Rubida Research Pty Ltd. In addition to teaching in architecture she has planned a masters degree program and consulted on university, vocational training and school projects in Adelaide, Victoria and Thailand. She has a global perspective on learning framed by her experiences living in Spain, Germany, America and Australia.

This article is a Summary of Proceedings from the TEFMA Workshop on Working Environments held in Adelaide on 20–21 March 2006.

Introduction

The principal theme being examined at the TEFMA Workshop on Working Environments was the open plan versus private office dichotomy, with a strong focus on the viability of an open plan workspace environment and its relevance in the higher educational sector.

For millennia since the first university was established – with scholars housed in monastic-like alcoves – the cellular office model has changed little. Yet teaching, learning and research is increasingly collaborative, as is evident in the way funding is being directed – linkage grants, cooperative research centres, double degrees and so on. But this cultural transformation in higher educational practice is still to be fully experienced in the physical infrastructure supporting those academic activities. The Adelaide Workshop explored various attempts at implementing more collaborative working environments, epitomised by the so-called 'open plan office'.

Open plan offices

All presenters seemed to agree on the need for excellent communication and consultation when a change of culture as huge as the move from a 'private' office to an 'open plan' one is commenced. The most important factor to consider is to keep all the parties that are going to be affected very well informed during all phases, all the way from design to completion. It was suggested that a prototype workstation could be set up early in the design phase, so the users could comment and get used to it (see Presenters listed below: Schulz). Ideally, a whole cluster should be set up, although it is not always possible (Wardle). Systems established on a voluntary basis, with people choosing to move into the workstations, were thought to be helpful for the success of the move and the change of paradigm.

Not surprisingly, psychological compensation plays an important role: the set-up of any offices and meeting rooms needed for security or privacy factors, in the middle of the floor, leaving the windows to the workstations, acts as an enticement for the choice of the open plan. A spatial hierarchy is established where shared spaces have views and private spaces are located internally closer to cores, with views through or over the shared spaces.

With the move to open plan, a total change of culture is evident where users have to adapt to the situation, even in terms of the ringtone volume of mobile phones and the production ▷

of food smells or noises. The establishment of a set of rules – like staff not eating at their desks or any gathering of more than three people being considered a meeting and needing to take place in the nominated meeting rooms – was suggested. Yet it was thought that there is little point creating a behavioural policy as workplace behaviour seems to change anyway every 12 to 18 months, with a lot of the change being driven by technology or simply by a change of leadership.

Even though some of the ideas presented seemed quite appropriate to foster the correct functioning of the open plan workspace, in the post-occupancy evaluations many elements appeared not to be working as expected. For example, the 'monk cells' being equipped with audiovisuals for private meetings or quiet space, the availability of hot desks and the centralised kitchen for socialising in an informal way with people moving voluntarily to the open plan offices with enticements such as a better view, did not result in optimal outcomes. The 'monk cells' and the small meeting rooms were in many cases taken over as private offices, challenging the idealised flow of the organisation. Often it was thought that this was due to not having allowed for enough flexibility in space allocation, which was calculated at about 14 m^2 plus 10 per cent growth (Frowd & Robinson). There also appeared to be a need for a better balance between private and collaborative spaces. Another key factor was that lighting and power outlets need to be flexible if the space has to be flexible.

The design process

Regarding the interface between the user, the client and the architect, the case studies presented at the Workshop offered an excellent overview into the thorough research and extreme care for meeting the needs of the client that many architectural practices pursue. These approaches focus on the needs of the final user, namely academic staff, administrative staff and students. In many cases, the architectural interventions involved a change of culture to some degree (Donaldson, Jackson, Wardle).

Special mention should be made of the Louis Laybourne Smith School of Architecture and Design building, UniSA, where a series of workshops, interviews and extensive consultation processes resulted in academic staff moving to a non-conventional open plan office environment. This building holds clusters of four staff members, with each group having cognate research and/or teaching interests. The sections were not completely isolated, so adjustments needed to be made in terms of mobile phone volume settings and private conversations being not so private, or having to access a private meeting room equipped with telephone and computer network access for privacy (Wardle). In another case study the community was reduced to 30 people, creating clusters that were duplicated, so even book storage and resource sharing was not at too large a scale (Donaldson).

It was generally agreed that the open plan area needs ongoing management and ongoing experimentation. Also resources have to be in place for storage and noise control as well as adequate equipment, like computers in the meeting rooms, with access to staff files. It was suggested that there might also be a special kind of 'open plan' academics whose characteristics would include, among others, being adaptable, flexible and good communicators.

From a user point of view the sense of belonging and participation in the design process is crucial. In order to accommodate the users' feeling of partial ownership or design participation in the future, spaces need to be created that are sensorially incomplete, to be completed by the users over time (Wardle). Yet even though there is still discrepancy in the opinions of how an open plan setting works for research-centred staff, the building can offer compensations. For example there can be a greater

Presenters					
Dr Verna Blewett, Visiting Research Fellow, University of Adelaide, SA	**Mr Gabriel Caus**, Development Planner, Facilities Management, University of New South Wales	**Mr Ross Donaldson**, Partner, Woods Bagot, Perth, WA	**Mr Andrew Frowd**, Director, Facilities Management	**Ms Barbara Robinson**, Manager, Standards and Records, Facilities Management, Queensland University of Technology	**Mr Daryl Jackson**, Daryl Jackson Architects, Melbourne, Victoria
'Ergonomics of healthy working environments'.	'Formal and informal environments complementing business and social activities'.	'Design and development of space to match need' – case study.	'What would we do differently next time' – case study.		'New working environments for researchers'.

sense of pride in belonging to such a collaborative building by the staff and this sense can be specially fostered through staff involvement in the design and development phase (Lee). Who better than the staff of the Schools of Art and Architecture to appreciate a great piece of contemporary architecture?

Looking at the user in a smaller scale, the individual entities for whom the building is actually being designed must be continually considered (Blewett). Not only the human physical aspects, but also psychological factors need to be addressed. Ergonomic science should be behind many design decisions even though they are many times not addressed by that name.

Teaching, learning and research spaces

A part of the working environment for an academic is, without any doubt, the teaching area (Caus). The teaching and student areas are of increased importance for formal and informal learning and must reflect changes in society. Student culture is changing. For example, recent student satisfaction surveys show that students are leading increasingly complex lives. This translates into greater expectations from the university and from its teachers and staff. These demands are continually evolving and need to be addressed, bringing into focus the importance of design. The need to offer a lifestyle option instead of just a learning option is more and more evident.

In research laboratories, the mission of providing access to the different people involved in research projects and the creation of opportunities for exchange of information is paramount. This is why some research laboratories are going a step further, to the point in which the academic's office environment is losing its independence from the formal and informal teaching areas. Instead, within research laboratories there is a need for connection, fluidity and diversity of spaces, all related to not only new research methods and the manner they are being taught, but also to the change of student culture (Jackson). Also the increasingly interdisciplinary nature of learning in science should be recognised. The different spaces need to be connected, physically and/or visually to host a vibrant group of researchers that are continually in need for exchanging information.

The public domain

The blending of formal and informal environments offers a different paradigm, something to relate to and to belong proudly to. Once again psychological compensation is used with the offer of good informal spaces where the formal are not yet optimised. Interventions such as the North Terrace Redevelopment adjacent to the University of Adelaide are examples of the attempt to mix cultural and civic importance within a relaxed social environment (Taylor). This is achieved through the careful juxtaposition of pavements, lawn and planting to create spaces that enhance both the ceremonial and everyday functions of the Terrace. Several design principles describe the physical expression of the framework: link the city and the river; create thresholds with a green Terrace Walk; enhance the cultural heart of the city and Terrace; and cross-fertilise between the varied land uses and activities in the precinct.

Conclusions

The Workshop provided a good overview of the working environments of academics, the innovations, the constraints and the opportunities that are arising as research and theories on open plan academic office environments are put into practice. The different approaches in which this is happening are reflective of the need for the continuous experimentation previously mentioned as well as the fact that each institution is a completely different entity. There is no such thing as one-size-fits-all, as an institution's landscape, building and interior space design and organisation should always aim to express (or at least reinforce) its academic values.

Mr Mike Jones, National Operations Manager	**Mr Rudy Gagliardi**, State Service Manager SA/NT, United Services, Melbourne, Victoria	**Ms Gini Lee**, Lecturer, Louis Laybourne Smith School of Architecture and Design, University of South Australia	**Ms Lucy Schulz**, Director, Student and Academic Services, University of South Australia	**Mr Kevin Taylor**, Director, Taylor Cullity Lethlean, Adelaide, SA	**Mr John Wardle**, John Wardle Architects, Melbourne, Victoria
'The role of FM managers planning and operating the right environments'		'A client perspective of matching working environment to need' – case study.	'Managing a team in open plan' – case study.	'Linking internal and external environments' – case study.	'An alternative model for improving client and customer relationships in project design & development'.

mulch better **green solution**

Kerry Marshall is Corporate Services Manager, with responsibility for Facilities, IT Services, Finance and Planning, at the Eastern Institute of Technology (EIT) in the region of Hawke's Bay on the North Island of New Zealand. Kerry has been in this role for 16 years and prior to that was Head of the Commerce Department and involved in teaching. He is particularly interested in the issue of sustainability for tertiary education institutions. EIT provides a range of programs from foundation to degree and postgraduate, with niche expertise in wine, arts and language.

The Eastern Institute of Technology (EIT) has implemented a green waste process that has virtually eliminated the dumping of green waste from its Taradale campus.

Located in Hawke's Bay (on the East Coast of the North Island of New Zealand) EIT's campus covers 28 hectares of land gifted several decades ago. In such a good climate and with an attractively landscaped environment, grounds maintenance generates a large volume of waste ranging from lawn clippings to trees and shrubs. Until recently some of this waste was dumped while some material was burnt in a pit; however, the pit burning process was not only polluting but also generated regular unnecessary fire service call-outs.

Most gardens had been covered with bark both as a landscaping tool and as a method of weed control, but the bark tended to be washed away during heavy rain, creating problems with gutters and sumps. This prompted Facilities staff to investigate options for eliminating the waste disposal and to develop a business case for the construction of green waste recycling.

The three bins pictured are concrete block construction, open on one side to permit the transfer of the processed material through the three stages. Stage one involves delivery of green waste to the site and the shredding and mixing of larger material with small material like lawn clippings.

After a period of time (typically as much as 40 to 50 days) the material is moved into the second bin where further fermentation takes place until after about 30 days this material can then be transferred into the third and final bin.

The resulting mixture is a mulch rather than compost but has proven to be an ideal cover for the numerous gardens around the campus. As the mulch breaks down on the ground it is conditioning the soil and already grounds staff note a big improvement in soil quality. The mulch is a much better cover than the bark in that it provides better weed control (use of chemical weed killers has been reduced by more than 50 per cent) and it does not get washed off the gardens as easily.

The system means that almost no green waste is leaving the site, and in addition some material has been sold for use by local landscaping contractors in various projects. This is a good example of innovative thinking and a significant contribution to the Institute's sustainability objectives.

wollemi pine – a green dinosaur

FACILITIES SUPERVISOR, GEOFF COTTEE WITH A 'SECURED' WOLLEMI PINE.

Mike Cooper is the Director of Facilities Management and Services, Southern Cross University - a position he has held for the past five years. Prior to this he was employed as the Capital Projects Manager at SCU. Mike has more than 30 years' experience in construction and property management, and holds a degree in management together with qualifications in Facilities Management and Building Sciences.

Southern Cross University (SCU) was fortunate in obtaining three propagated Wollemi pines *(Wollemia noblis)* prior to their official release to the public in April 2006, where royalties from the sale of plants will fund the conservation of other rare and endangered plants.

The pines have been hailed as the botanic find of the 20th century when a small group of about 100 trees of these ancient and presumed extinct relics of the dinosaur age were found in a secluded gorge near Sydney in 1994 by Park Ranger, David Noble.

Until their discovery the species was known only through fossilised pollens dating back 91 million years. Botanists have established that the species belongs to the Araucarian family of trees, which have been around since the late Triassic period (215 million years ago) and which have living descendants today in the Hoop and Norfolk pines.

The Araucariaceae reached maximum diversity during the Jurassic and Cretaceous periods, between 200 and 65 million years ago, when there was worldwide distribution. Range and diversity was greatly reduced at the end of the Cretaceous period; with the extinction of the dinosaurs the Araucariaceae became extinct in the Northern Hemisphere with remaining numbers declining ever since.

The tallest pine of the surviving grove is more than 35 metres high, with a diameter of one metre and an estimated age of 400 years. DNA studies show that the last (known) survivors show no genetic variation at all, indicating that the existing trees are all descendants of a single pine.

A research program coordinated by the NSW National Parks and Wildlife Service (NPWS) and the Royal Botanic Gardens Sydney (RBG) is studying the ecology and biology of the species, including the preparation of a conservation strategy for the protection of the grove of the Wollemi pine.

The three SCU pines have been planted on the Lismore Campus during a very successful 'community' planting day in which members of the public, staff, students and members of the combined Rotary Clubs of Lismore planted more than 600 rainforest and koala food trees as part of the University's Environmental Management Strategies that also includes the regeneration of parts of the campus.

The Lismore Campus also contains stands of the endangered plant, Fragrant Myrtle (*Austromyrtus fragantissima*), and the threatened species, Thorny Pea (*Desmodium acanthociadum*).

MEMBERS OF THE COMBINED ROTARY CLUBS OF LISMORE AND GREEN CORP PLANTING ONE OF THE PINES.

house of the future

Mike Cooper is the Director of Facilities Management and Services, Southern Cross University - a position he has held for the past five years. Prior to this he was employed as the Capital Projects Manager during the period in which Southern Cross University underwent considerable expansion and restructure.

Mike has more than years of extensive experience in construction, both commercial and residential, as well as property management, and holds a degree in management together with qualifications in Facilities Management and Building Sciences; he is from a trade background. Mike is a firm believer in the values and benefits of TEFMA and he is now in a position to 'give something back'.

Southern Cross University has obtained the timber 'house of the future'. The prototype house was developed for the Houses of the Future Exhibition and has been displayed at the Sydney Opera House and Sydney Olympic Park. The house represents an investment by the timber industry and its partners of approximately $500,000 in design, material and labour.

The house, designed by Innovarchi Architects, explores the single family dwelling and its relationship with the environment through developing an idea about a surface that is metaphorically a piece of landscape, a surface that undulates to form internal and external spaces that blur the distinction between the natural and built environment. That surface or skin is simultaneously roof, wall and floor. In the future house, according to Innovarchi, there should be no distinction.

This skin has several purposes: it is simultaneously a shading mechanism and a solar collector, it maximises water catchment and houses the water recycling systems. The skin also encloses the space that people inhabit inside the house.

The house challenges the relationship between interior and exterior space and the application of timber building materials and timber-based products. It also serves to demonstrate that prefabricated buildings do not have to be uninteresting boxes but can be complex forms and spaces, and that timber is easy to construct, modify and move in large pre-fabricated pieces.

While there are typical timber products used throughout, the house aims to test traditional notions about how timber can be used and what constitutes a timber product, with the added benefit of no great change to conventional construction methods.

The prototype is an exploration into different design concepts, it is unique, incorporating new products and design and includes a paper/resin cladding and third generation solar power cells used as a skylight. The paper/resin cladding, although not commercially tested, has withstood the extremes of the Northern Rivers (NSW) climate including more than 900 mm of rain so far this year.

The Timber House showcases a 'fully integrated environmentally sustainable design (ESD) solution', incorporating some of the most up-to-date technologies to deliver a home that is comfortable to live in and provides a sustainable housing option for the future. The Timber House aims to challenge traditional thought about how timber can be used and what constitutes a 'timber' product. It introduces advances in material technology, using fibre products that with carefully managed farming can be excellent renewable resources.

The structure was pre-cut in Victoria and transported flat-packed to NSW. The building was assembled in six modules and transported to site on three separate trucks, two being wide loaders. Each module is required to be lifted by crane and sited on concrete block piers. The modules have been disassembled and re-erected for the fourth time and have withstood the rigours of lifting, transportation and re-erection extremely well.

Environmental features

- the LVL (laminated veneer lumber) structure and plywood panels are renewable plantation pine.
- the Australian hardwoods used are from eco-select sustainably managed forests
- reduced embodied energy
- carbon storage
- the exterior cladding is a wood fibre and phenolic resin product
- e-veneer is made from wood fibre rather than peeling logs
- the cardboard foil composite insulation is fully recyclable

- solar Titania cells are an Australian invention using dye-based nanotechnology to generate electricity.

Rainwater collection

The structure of the house is designed in such a way that the surfaces of the house maximise rainwater collection and drain to central point. In effect, the surface area of the house is its own catchment area with storage contained underneath.

Solar hot water

On average, about 40 per cent of the energy used in a house is used to heat water. The solar water heater in the courtyard of the house uses the sun's energy to heat water, thus saving valuable energy resources and helping to reduce greenhouse emissions.

This system is different from conventional flat plate solar hot water systems, as it has tubes that maximise exposure to the sun as there is always a surface that is perpendicular to the sun's rays. This results in a system that is up to 40 per cent more efficient than traditional flat plate solar water heaters. Solar energy is absorbed by special heat pipes located inside each tube, which contain a small amount of non-toxic liquid that turns to gas, creating heat transfer via a manifold.

Solar power

The house incorporates third generation solar technology in dye solar cells (DSC) that use dye-based nanotechnology to harness solar energy from direct or indirect light sources. The system is biomimetic and works by imitating the process of photosynthesis in plants. The dye cell has been called the first real revolution in solar energy since the establishment of silicon solar cells some 40 years ago.

The house is impressive and contains a number of sustainable features that will enable the university to promote itself throughout the community, in particular school groups.

FACILITIES SUPERVISOR GEOFF COTTEE (RIGHT) AND CAMPUS SERVICES SUPERVISOR RICHARD HYDE.

working **capital assets harder**

Ross Donaldson joined Woods Bagot as a Partner and leader of the Perth office in 2001. Ross is a registered architect and urban planner with more than 25 years of experience and a wide range of involvement in architectural, urban design and community planning projects.

In recent years at Woods Bagot, his abilities have been translated to the national and international arena with his leadership of the company's design competition winning tertiary education projects in the Middle East, major recent projects in Asia and education projects in China.

Innovative design helps FMs work capital assets harder

Tighter Federal funding, together with increasing competition for research funding and students, is driving universities to work their capital assets harder to generate a greater return on capital investment.

This includes the design of new facilities, where the technology revolution and new modes of teaching and research are generating change to spatial design parameters. These standards are being matched closely to academic needs, while retaining flexibility for multiple users and future change. A closer watch between use and design has become critical, as well as modelling to make centralised timetabling work across the campus.

Recent Woods Bagot projects have tested spatial efficiencies, such as the National University of the United Arab Emirates in Dubai. Five months of rigorous analysis of use of campus space involving extensive consultation, desktop timetable modelling, and use of international space per student trends, allowed initial space requirements of 226,000 square metres to be reduced to 127,000 square metres. This resulted in a US$500 million saving in the overall project cost.

Similarly, a comprehensive review of timetabling and contact hours allowed South Bank Education and Training Precinct to cut down a 35,000 square metre requirement to 21,000 square metres. New opportunities emerged, enabling addition of flexible learning environments and breakout spaces. Capital costs were reduced from $300 million to $200 million.

University of Western Australia Business School

At the University of Western Australia Business School, critical analysis of the brief, and working with staff and facilities managers identified key goals for the school. As these objectives included world-class positioning to attract international students, it was necessary to acknowledge trends toward new modes of delivery in learning, the need for flexible and social working environments, and students' desire to be part of a learning community with a strong social identity.

The two key themes that emerged from workshopping were the desire for academic collegiality, and encouraging world-class research. This, together with the school's need to accommodate an expected 40 per cent growth over 10 years, led to a dramatic shift from the 'gun barrel effect' of corridor offices with closed walls and no interactive spaces in the workplace.

Instead, a more open plan environment was introduced based on the academic cluster model, grouping academics with research associates and postgraduate students. Essentially, this applied experience from the corporate workspace to unlock knowledge sharing, while managing staff security and student access concerns. The open plan allowed casual meetings as well as retreat-focused research, and took advantage of magnificent views across the Swan River. Some 800 square metres were saved out of the briefed area, which the Business School reinvested in quality-enhanced spaces.

However, reduction of office space from the Australian TEFMA standard from 12 to 10.5 metres was a radical step, which led to concern about academic loss of facility and quality of space. A comprehensive consultative review, including one-on-one interviews and workshop groups, led to a collective agreement about office clusters. Each cluster would host approximately 12 academics in offices, 10 workstations for hot-desking administrative and research staff, a meeting room and breakout lounge area. Workshopping involved 3D-animation to provide a high level of confidence so people knew what they were buying into, and showing how they could get their furniture, storage and books into these spaces and still have a comfortable working area.

The information and communication technology (ICT) revolution has driven the trend towards lifelong learning, reskilling and retraining, demand for night and weekend classes, and 24x7 use of facilities. This requires greater social interaction and access to food and beverages, so there is a greater variety of spatial types in the mix.

The building is energy efficient and demonstrates good practice in sustainability. A radical approach to mechanical servicing with a chilled

beam (a water-chilled element cooling the rising warm air) system provides 100 per cent fresh air. Not using recycled air has reduced the need for ceiling space. Floor-to-floor height savings of $1 million on the building's external skin paid for the additional technology. The absence of large air handling rooms means fewer square metres per floor are required for mechanical servicing systems.

Central to an innovative outcome is a careful approach to change management, so people's perspectives can change slowly. Also essential was the university's positive endorsement for the building's key design elements.

Located at the opposite end of the campus from the university's landmark sandstone buildings, the Business School is a 21st century model, announcing a new era on campus and a new style of architecture. Images of the Western Australian state economy from resources and primary industry have been taken as its architectural theme, drawing upon the Pilbara, wheat fields, goldfields and other 'economic' landscapes. The images help to tell the economic history of the state, reflecting the Business School's vision of the future and its aspirations, and providing the building's distinctive architectural expression.

Economic rationalism and the imperatives of academic research have generated a new model for planning, learning and workspace environments. Academic buildings of the future will look different from the outside, as well as on the inside. They will be more cost-effective and more flexible culturally to the future and changing needs of teaching and research.

stephenson walk

DENIS STEPHENSON WITH NANCY MILLIS.

It is not often that we see a University mark the retirement and service given to it by one of its Facilities/Building managers with the naming of a physical part if its campus in their honour. La Trobe University determined to do this to acknowledge the contribution made to its development by Denis Stephenson, who worked in the Buildings and Grounds Division for more than 30 years as Planning Architect and Director/Manager of the Division until his retirement in 2003.

An undeveloped walkway and courtyard, which linked the recently constructed Health Sciences precinct to the Library and central Agora, was being increasingly used, and was not coping with the heavy pedestrian traffic that was generated by the Health Sciences expansion. This precinct, which now bears Denis's name, has been landscaped with a paved broad walk, passive recreation areas and a paved courtyard with seating. Soft landscaping consisting of native under-storey planting beds and avenues of shade trees have been established to transform the space into a pleasant facility for those passing through it and also those who wish to pause and relax in the gardens.

The precinct was formally opened in October 2005 at a naming ceremony that was performed by the Chancellor of the University, Emeritus Professor Nancy Millis, and attended by Denis and many staff, both past and present, the Building and Grounds committee, friends and Denis's family.

Professor Millis, in naming the precinct Stephenson Walk, recognised the significant contribution Denis had made to the planning, physical development and care not only of the main Bundoora campus with its significant landscape, but also the 'greenfields' developments on the University's regional campuses. His management role while head of the Division, in conjunction with his professional qualifications in architecture and landscape design, had engendered many significant achievements, some of which had received public and peer recognition, and brought credit to the University's reputation.

There was a notable change in roles when Denis was passed the ceremonial silver spade by his successor, Barry Inglis, to use in the planting of a commemorative tree in the courtyard.

TEFMA has also recognised Denis's contribution to facilities management in the tertiary education sector, the development of AAPPA and TEFMA, with the award of Emeritus Associate Membership at its Hobart conference in 2004.

laptop use in university common spaces

Bill Wolff is a doctoral candidate with a Computers and English concentration in the Department of English, University of Texas at Austin (bill.wolff@mail.utexas.edu). *This article discusses a survey of laptop use in common spaces at the University of Texas that revealed students were creating anywhere, any time learning environments.*

Following the implementation of a wireless network at the University of Texas at Austin in 2000, wireless coverage by 2005 included approximately 80 per cent of common spaces and 40 per cent of classrooms. About the same time (2002–2004), graduate and undergraduate student laptop computer ownership increased (from 45 per cent to 57 per cent for graduates and 22 per cent to 45 per cent for undergraduates) while desktop computer ownership decreased (from 55 per cent to 40 per cent for graduates and 75 per cent to 55 per cent for undergraduates).[1]

In 2004, Information Technology Services (ITS) began a series of biannual studies assessing public wired and wireless network usage.[2] The studies track total unique users, connection times, student degree status, and student college or school affiliation. They do not track the locations from which students access the wireless network or the type of work students are doing when using the wireless network.

Anecdotal evidence existed about the many students who use their laptops and the wireless network in university common spaces, but little was known about how, where and why students use laptops on campus, and less was known about students' awareness of university wireless network policies and security. The university also had little evidence concerning logistical barriers (such as inappropriate furniture or lack of access to power outlets) that might keep students from working comfortably and effectively in university common spaces.

To better understand some of these issues, I conducted a study specifically on student use of laptops in university common spaces. That study addressed the following questions:

- What are the overall patterns (spaces used, frequency, duration) of student laptop use in common spaces on campus?
- Are there differences in laptop ownership and use by gender, degree status or field of study?
- Can students find secure long- and short-term on-campus locations to store their laptops?
- How aware are students of wireless network bandwidth usage, funding and connection security?
- How conducive is the physical space for doing work (with or without a laptop)?

For the purposes of this study, common spaces were defined as lobbies, lounges, hallways, cafeterias, atriums, courtyards and other spaces (indoor and outdoor) where students may individually or in groups convene to relax, eat and work. The study excluded all libraries and designated study spaces.

Results and discussion

During administration of the study, which ran for 30 days in April and May 2005, 100 students working in common spaces in eight buildings were randomly approached. Of the 81 who agreed to participate in a brief survey, 51.8 per cent were

female and 48.2 per cent were male[3]; 76.5 per cent were using laptops when approached, and 23.5 per cent were not using a computer of any kind. The participating students represented 10 of the 17 university schools and colleges. The majority were undergraduates (67.9 per cent), with 23.4 per cent graduate or MBA students and 12.3 per cent law students. All participants owned either a desktop or a laptop or both a laptop and a desktop.

Overall results indicate that regardless of gender, degree status or college affiliation, students purchased laptops, brought their laptops to campus, and used common spaces at a similar rate. Most students were not aware of university public network bandwidth limitations, perhaps indicating sufficient bandwidth for their needs. In addition, many students did not know about their wireless connection security or even what security meant in the context of wireless networking.

The majority of students described their experience with wireless in their common space location as 'excellent' and their overall wireless experience at the university as 'less than excellent', with the main determining factor being the frequency of signal interruptions. These trends were consistent regardless of gender, degree status, common space location, how often they brought their laptops to school, and how often they worked in a particular location. Complete survey results and data analysis can be found at: www.cwrl.utexas.edu/~wolff/laptop-report.html.

Survey results indicate that students are rethinking and redesigning common spaces into anywhere, any time learning environments. One surprising, statistically significant finding was that 96.2 per cent of students used university common spaces for activities directly or indirectly related to learning. When asked what they were currently working on, students responded with 11 items, which were then broken down into the following three categories:

- school and/or learning related – online research, school work, studying for a test, registering for classes, conducting TA office hours, web design and coding
- internet/e-mail – browsing the internet, checking e-mail
- personal – chatting with friends, paying bills, playing online games.

Items within the first category are self-explanatory, as are the items under the personal category. The internet/e-mail category, however, requires explanation because of the multiple functions that e-mail and browsing the internet serve – both can involve personal or learning-related activities. For example, a student checking her inbox might find e-mail from friends and family, as well as from her instructor with an assignment update. Browsing the internet, ranging from reading blogs to checking the news or shopping, could be educational depending on the goal of the activity.

The most striking finding about student common space use patterns is that so few students (3.8 per cent) used university common spaces for completely personal activities. No graduate, MBA or law students used their time in university common spaces for solely personal activities. The majority of students (72.5 per cent) used common spaces for activities directly related to school and/or learning. Almost one quarter (23.7 per cent) used common spaces for activities indirectly related to learning.

These trends are consistent regardless of gender, degree status or common space location. They are fascinating considering that the university did not originally conceive the common spaces visited as study spaces. For example, all MBA students surveyed were working in an atrium that doubles as a cafeteria, and all but one law student were working in lounges outfitted with leather recliners, armless sofas and coffee tables (the other was sitting on a hallway bench).

Study results also suggest that once students begin working in a particular space, they become invested in the niche they have created. The majority of participants (67.5 per cent) had been working in their common space location for more than 30 minutes. (Of the students who had been working for more than an hour, 91.7 per cent were doing work directly related to school and/or learning.)[4]

When asked if they had found a secure place to store their laptop if they wanted to temporarily leave their current location, 81.2 per cent answered no. The one-third of students who took their laptops with them when they wanted to leave for a short time spoke of frustration with having to do so. More troubling, more than 50 per cent reported leaving their laptop completely unsecured, either leaving it on the table by itself or asking someone to watch it (see Figure 1, page 21). Students made a clear distinction between 'asking a friend to watch their laptop' and 'asking someone to watch their laptop', meaning someone they did not know and therefore could not ▷

TEFMA BUSINESS PARTNER ADVERTORIAL

ONTERA
STYLE THROUGH TECHNOLOGY

How did the company begin?

Ontera ModularCarpets Pty Ltd started operating in 1985 in Northmead, NSW and is currently part of the Cavalier Corporation. The company manufactures modular carpet (carpet tiles) for a wide variety of commercial projects throughout Australasia.

What are the company's unique services/products – for the tertiary education/facilities management sectors?

Ontera modular carpet will never split, so you will have no unsightly repairs. Facilities Managers will never have to contend with split seams that can create a dangerous safety hazard causing trips or falls.

In addition, Ontera modular carpet is:

- guaranteed to last for a minimum of 10 to 15 years, even in the most demanding education environments
- easy to clean and maintain – the tiles can be removed easily, washed, dried and replaced
- easy to move and replace – the tiles can always be lifted and replaced by general maintenance staff
- able to provide minimum disruption during refurbishments – occupants do not need to be relocated, which reduces disruption and inconvenience
- able to provide long-term availability – Ontera guarantees 10-year design availability on standard product ranges
- able to provide improved indoor air quality – all Ontera products are low VOC-emitting, which contributes to improve indoor air quality.

Why has it formed a partnership with TEFMA?

Ontera is aware that TEFMA assists Facilities Managers in universities, colleges and other educational institutions in the Australasian region, and is proud to be able to provide vital infrastructure and service in support of the effective operation of tertiary education in the region.

What is a recent success for the company?

The University of Queensland has recently completed an 800 m2 refurbishment of its Student Services Centre in the St Lucia Campus, Brisbane. The Centre's primary function is the interface between the university and students for enrolments, enquiries and payments. The Centre required flexibility to handle large numbers and queues during the commencement of the semester, yet not appear to be an overuse of space during the quieter periods.

Flooring by Ontera was selected for a number of reasons, most particularly speed and ease of installation, which given the restricted time

frame on site, allowed the project to proceed without waiting for carpet to be installed first.

"A big advantage," said Andrew Francis, Associate Director with Cottee Parker Architects in Brisbane. "Being a high traffic zone, ease of removal for maintenance and replacement were also important factors. Environmental aspects were also a major consideration, with low VOC-emitting carpet being an important contributor to improved indoor air quality."

What is coming up for the company?

Ontera is about to launch Greensquare™ a range of products that have demonstrated significant achievements in the minimisation of environmental impacts. The use of products within the Greensquare™ family will also help to maximise credits in the Green Star rating tools.

Why should TEFMA institutions seek out Ontera in the next 12 months?

Ontera has extensive experience in supplying flooring for the education sector and provides solutions engineered to meet the severe demands of the floor covering in all educational environments. Ontera can assure you of a carpet that will enhance the learning environment of your facility for many years to come. Using the Greensquare™ range of products will also help to minimise environmental impacts.

FOR MORE INFORMATION ABOUT ONTERA MODULAR CARPETS PTY LIMITED
PLEASE CONTACT David Rowlinson at e-mail: drowlinson@ontera.com.au

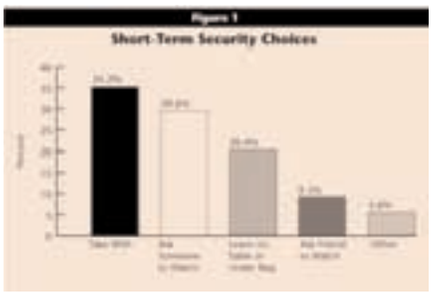
Ontera Modular Carpets Pty Limited, 171 Briens Road, Northmead NSW 2152
TELEPHONE (02) 8838 2540 FAX (02) 9630 8531

trust. Leaving the laptop on the table completely unattended is even more troubling. For many students, the benefits of having a good space evidently outweigh the risks of having their laptops stolen.

A lack of access to power outlets compounds the security issue – if the student leaves with the laptop and other materials, both the space and the outlet are lost. Common spaces in only two locations had enough power outlets in convenient locations to provide adequate support for students' power needs. Laptop cords in other locations (especially those with almost all power outlets in centre support columns) dangled and stretched over and around tables, across hallways and behind students in ways hazardous to laptops, students and passers-by. Most students who brought their laptops to campus used common space locations to charge their laptop batteries yet expressed considerable frustration with the number and location of power outlets in common spaces:

- "There are only some tables near outlets; you have to get lucky to get a spot by an outlet."
- "I would like more outlets so I can actually plug in my laptop; when my battery runs out, I have to work on something else."
- "I had to buy an extended 6-hour battery because of the lack of power outlets."
- "There aren't enough power outlets considering the [number] of students on campus."

When asked about long-term storage for laptops on campus, 81.2 per cent of students said they had not found secure long-term storage, with 51.4 per cent preferring to keep their laptops with them. Of those who stated they had found secure long-term storage, 84.4 per cent left their laptops in campus lockers and 15.4 per cent left them at their on-campus workplaces. While leaving a laptop in a locker is more secure than leaving it in the open, many of the lockers did not have high-end locking mechanisms. Some students stated that they 'hadn't looked' (10.8 per cent) or had 'no need' (5.4 per cent) for long-term storage.



Recommendations

Laptop security and access to power outlets are clearly issues important to students working in common spaces on campus. They can be addressed, however, with a few simple measures.

When considering short-term laptop security, a practical and inexpensive solution is to attach metal eyelets to the tables. Students can run their laptop locks through the eyelets to secure their computers.

Long-term storage is another issue. One solution to the problem of lockers with weak locks would be to update the lockers with a more secure locking mechanism, such as a coded lock instead of a removable key. Universities could also offer annual common-space locker rentals, just as many do with gym lockers. Those lockers could be larger to accommodate laptops and books and could have a more secure locking mechanism.

In buildings with power outlets located at ground level, raising the outlets above the tabletops can be accomplished using extension boxes and conduits. Furniture could be arranged to bring the tables closer to the outlets for easier access.[5]

Colleges and universities have reached a critical stage in developing their wireless networking environments – environments that include common spaces. Understanding how, where and why students use laptops can only help those networks grow in ways that support learning.

Acknowledgments

The creation of this study greatly benefited from the assistance and support of Daniel Updegrove, Vice-President for Information Technology at the University of Texas at Austin. The complete report could not have been written without the time, teaching and expertise of Nancy Heger, Consultant for ITS Research Consulting.

Endnotes

1 See www.utexas.edu/its/surveys/ for University of Texas at Austin Information Technology Services (ITS) Survey results from 2002–2004.

2 See www.utexas.edu/its/network/wireless/ for 'Analysis of Pubic Network Access Usage Data' results from [US] spring 2005, [US] fall 2004, and [US] spring 2004.

3 This breakdown is consistent with the overall university population (51 per cent female, 49 per cent male). See www.utexas.edu/academic/oir/statistical_handbook/04-05/ for the most recent data.

4 Results from this study do not show how long a student was planning to stay in that location and, therefore, do not give a complete indication of the total time students spent in common spaces. This question will be addressed in follow-up studies.

5 This idea was conceived of and implemented by the physical plant after the final report was written.

TEFMA BUSINESS PARTNER ADVERTORIAL

How did the company begin?
Camatic was founded in 1956 by Brian Fisher as a repetition engineering business, manufacturing turned and pressed steel components, such as bottle openers.

What are the company's unique services/products – for the tertiary education/facilities management sectors?
Camatic offers seating and writing tablet systems that exceed all requirements of modern educational facilities. Products are specifically designed to meet the harsh environments and treatment they receive with strong consideration to maintenance and life cycle costing.

Why has it formed a partnership with TEFMA?
TEFMA is a business partner that helps us achieve our company goals in the educational market.

What is a recent success for the company?
Recent successes include the Chicago Bears Stadium in the US, MCG Northern Stand re-development (Melbourne), Rod Laver Arena re-seating (Melbourne) and a North American joint venture for distribution of education facilities seating.

What is coming up for Camatic?
New products including two new writing tablet systems – one arm-based and one from the seat in front (varsity). We are continuing our expansion into Asian, European and North American markets.

Why should TEFMA institutions seek out Camatic in the next 12 months?
We offer the most resolved and diversified seating solutions in the market today.

The CEO of Camatic is David Fisher.

What is your background?
I am a Mechanical Engineer with a manufacturing background.

How did you and your company become involved in the industry?
Camatic became involved in seating industry in the late 1960s with the Sydney Opera house seating contract; we later became involved in lecture theatre-style seating. However, it was not until 2002 with the launch of the Quantum seating system that Camatic became a major player in the lecture theatre seating market.

What aspect of your company gives you the most pleasure?
I enjoy the challenge of developing products for the world market and establishing international associations that gain the products international recognition.

What are the challenges for you in taking your company into the future?
We are aware of competition from low cost based manufacturing countries and the vulnerability of the Australian dollar.

How do you see TEFMA best supporting your goals?
TEFMA is a worthy organisation – it assists us to make local institutions aware of our product offering and its benefits.

Tell the readers something about you out of the work context.
I enjoy family, fitness, boating and fishing – when not travelling overseas on business.

FOR MORE INFORMATION ABOUT CAMATIC PTY LTD
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environmental sustainability gains recognition

Neville Thiele was appointed Director – Services at the University of South Australia in 2000. His focus on providing improved customer service has led him to become instrumental in the development of environmental programs within UniSA. His astute business sense ensures that these programs are both beneficial to the environment and commercially viable for the University.

The University of South Australia was a finalist in category 4 of the inaugural Greenhouse Challenge Plus Awards in late 2005, in recognition of our efforts in reducing greenhouse gas emissions over the past six years. Over the six years 2000–05, positive results have been achieved.

UniSA runs the Institute for Sustainable Systems and Technologies (ISST), an organisation dedicated to developing systems and technologies that will sustain eco systems and facilitate social and economic development while optimising the use of natural resources and minimising waste and emissions.

Greenhouse gas emissions

Since 2000 UniSA greenhouse gas emissions have been reduced by 4590 tonnes (15.7 per cent). Major strategies adopted to achieve these reductions include:

- implementing power factor correction at the City East and Magill campuses
- implementing an Interactive Energy Management System across all campuses, including Whyalla
- implementing push button controls for lighting and airconditioning across all metropolitan campuses
- the closure of Underdale and start-up of the Blueprint buildings
- educating staff and students on the importance of recycling, reducing and reusing.

Electricity and gas

Since 2000, usage of electricity and gas has reduced by 9.5 per cent and 21.7 per cent respectively as shown in the graphs below. During the same period student numbers have increased by 8.1 per cent. The overall result is that greenhouse gas emissions generated from electricity and gas consumption have reduced by 14.5 per cent over the past six years. Significant strategies have included:

- The installation of push button controls for both lighting and airconditioning – this was completed by the end of 2004 and reduced energy usage by ensuring lights and airconditioning are not left on in empty rooms, but still provide users with the necessary level of amenity when the rooms are occupied. It is difficult to determine exactly how much of the reduction in electricity use is attributable to the push button controls; the estimated effect is a reduction of 363,000 kWh per annum.
- Installing solar panels on the roofs of the two new buildings at the City West campus to heat water for the taps and showers in those buildings.
- Closure of the Underdale campus – this resulted in a reduction in gas usage of 4400 GJ, due to the gas-fired heating boilers and furnaces used at Underdale although partly offset by reverse cycle airconditioning systems in the new facilities at the other campuses.
- The installation and implementation of the interactive energy management system (IEMS) – completed at the end of 2004, the IEMS enables energy use not only to be accurately measured and recorded, but also actively monitored and load shed at times of peak demand to ensure the usage parameters agreed with the energy provider are not exceeded. The IEMS strategies have now been in operation for 12 months, and it is estimated that they resulted in savings of 700,000 kWh (700 tonnes CO_2-e [carbon dioxide equivalent]) during 2005.

Petroleum products

Usage of petroleum products reduced by 40.9 per cent over the past six years with a corresponding decrease in greenhouse gas emissions of 27.5 per cent. Significant strategies have included:

- Purchasing LPG powered vehicles to replace existing petrol-powered and diesel-powered vehicles. The University now operates eight LPG-powered vehicles, compared to one at the end of 2000, with a corresponding decrease in the number of petrol-powered vehicles.
- Closure of the Underdale campus and consolidation of academic programs. This has reduced the number of journeys required by staff and students between campuses. The total number of vehicles owned by UniSA has reduced from 68 at the end of 2000 (54 being petrol-powered), to 32 at the end of 2005 (15 petrol-powered).
- Contributing annually to Greenfleet, a non-profit organisation that runs a program to purchase and plant trees to offset the annual CO_2-e emissions generated by motor vehicles. Thirty UniSA fleet vehicles have been signed up to the program, offsetting a total of 129 tonnes of greenhouse gas emissions. ▷

- Staff are encouraged to use public transport, and secure bicycle parking for staff has been provided.
- Lobbying the public transport board for better and more accessible public transport routes between the UniSA campuses, and between the city and the campuses. One positive outcome has been the development of a new public transport interchange close to the Mawson Lakes campus, which will allow for rapid train transit from the city and will have a provision for bicycle lockers.

Waste products

Usage of waste products reduced by 23.7 per cent over the past six years, with a corresponding decrease in greenhouse gas emissions of 67.3 per cent, largely through an ongoing education program for staff and students to reduce, reuse and recycle.

Water

Usage of water reduced by 13.6 per cent over the past six years as shown in the graph below.

The University's water plan provides a comprehensive strategy for reducing mains water use, utilising grey water and storm water, and implementing efficient water management practices.

Sustainability planning

Through the University's Division of Information Technology, Engineering and the Environment, UniSA runs the Institute for Sustainable Systems and Technologies (ISST), an organisation dedicated to developing systems and technologies that will sustain ecosystems and facilitate social and economic development while optimising the use of natural resources, minimising waste, emissions and other environmental consequences, and reducing cost. In addition to research in environmental sustainability, and the forging of links with other bodies undertaking similar research, the ISST offers consultancy services, training for businesses and industries, and education at both undergraduate and postgraduate level. Recent projects in which ISST has been involved include:

- collaborating with the Mawson Lakes Development project team to develop and install solar lights around Sir Douglas Mawson Lake, which utilise an integrated curved solar panel, and will reduce CO_2-e emissions by four tonnes per annum
- organising the ATN Sustainability Symposium in September 2005
- research into sustainable cities
- sustainable transport options, including research into biodiesel and other alternative fuels
- research into sustainable airconditioning systems and other household appliances.

A sustainability strategic plan for the Mawson Lakes campus to 2010 has been drafted and distributed for comment. The plan covers effects on the atmosphere and global warming, energy use and alternatives to non-renewable resources, people and their working and living environments, land use and environmentally sustainable development, waste and recycling including waste water management, and water use and reduction.

invitation to tefma **business partners**

The TEFMA Board has decided to promote TEFMA Business Partners through the placement of 'advertorial' pages in the ***inside****newsletter* TEFMA magazine.

The purpose of the advertorial is to promote TEFMA Business Partners, and to introduce the company to readers of the magazine and to other TEFMA Business Partners. The charge for a full page of advertorial is $500 per issue. This fee is partly to offset the cost of preparing the advertorial, and printing and distributing the magazine.

To simplify the process and to give the advertorial pages an ongoing consistent and recognisable appearance, Business Partners are asked to supply short answers to a list of questions, which will be the basis of the advertorial – Graphics for the advertorial should also be supplied.

TEFMA is delighted to acknowledge Camatic Pty Ltd, Ontera Modular Carpets Pty Limited and Trane Australia as the Business Partners placing advertorial pages in this issue. TEFMA looks forward to strengthening its relationships with Business Partners through this medium in future issues of the insidenewsletter TEFMA magazine.

Contact for your advertorial

In the first instance and for more information, please contact Chris Box on (03) 9925 2797 or chris.box@rmit.edu.au

make a difference – **temc 2006**

Tertiary Education Management Conference

27–30 August 2006
Hilton Hotel, Sydney

Sydney is Australia's largest city and is renowned for its spectacular harbour. The city's vibrant blend of modern skyscrapers, cosmopolitan culture and dazzling natural attractions makes it one of the world's most desirable travel and conference destinations. This dynamic city is the location for the 2006 Tertiary Education Management Conference.

The conference venue is the new Hilton Sydney, which has been redesigned to once again tower as a Sydney landmark and premier venue for food, wine, conferences, events and a guest room experience unlike any other. The hotel is right in the heart of the city with magnificent views, and offers a truly inspired experience and a perfect location to Make A Difference.

What We Do Makes A Difference – the theme for the 2006 TEMC – aims to provide an overall and inclusive perspective on the impact that university administrators have on student outcomes. In an industry climate where deregulation, differentiation, specialisation, increasing competition, the communication revolution, changes in the student mix and the need for lifelong learning are increasingly influential on what tertiary administrators can and cannot do, this year's conference will highlight the ways that you can, and already do, make a difference.

The conference has attracted a number of key representatives who will expand on the issues paramount to the industry. These include:

- Professor Ingrid Moses: Chancellor of the University of Canberra
- Professor Ian Chubb: Vice-Chancellor of the Australian National University and patron of ATEM
- Professor Steven Schwartz: Vice-Chancellor of Macquarie University
- Robyn Moore: Multi-skilled communicator and advocate for the 'power of the word'
- Kate Brennan: 2006 NSW Young Australian of the Year

The keynote presentations will be supported by a range of papers on topics such as: Administration, Planning and Operations; Management and Leadership; Customer Service; Contracts and Contracting; Voluntary Student Unionism; The New Industrial Landscape; and Risk Management; as well as making a difference in Student Administration, Staff Support Services and Infrastructure Management.

Based around the theme of What We Do Makes a Difference, the conference will:

- provide delegates with inspiration on how to make a difference from excellent keynote speakers from within and outside the sector, and from the range of support papers
- give delegates the opportunity to make a personal difference by sharing information and learning from their colleagues both nationally and internationally
- display the latest innovations from industry partners
- enable unrivalled opportunities to meet new people, develop effective networks and renew old friendships throughout the sector.

Participate in the many and varied campus tours, and be ready to enjoy a magical evening at the Sydney Town Hall for the conference dinner.

In addition, the conference is lucky to already have the early support of a number of corporate groups. Australia Post has again confirmed their involvement in the event as the major sponsor. Australia Post is committed to the development of the Tertiary Education industry and will be involved in the conference in an interactive way to enhance the delegate experience.

Get involved and attend the conference. You'll be inspired to make a real difference!

What we do makes a difference
27–30 August 2006
For more information
and to register, please go to:
www.temc.org.au

upcoming events

Please note the following events in your diary.

Auckland Workshop
6 and 7 July 2006

The theme of the workshop is 'Space Management and IT'. The workshop will be held at the University of Otago Auckland Centre, 385 Queen Street, Auckland. The workshop is limited to 65 participants. Full details at: www.tefma.com/education/workshops/auckland06/index.jsp

APPA Annual Conference (combined with SCUP Conference)
8–11 July 2006
Honolulu, Hawaii, USA

This conference attracts APPA members from North America and a number of other countries including the United Kingdom, Canada, New Zealand and Australia. This year, for the first time, three major education associations are joining together to create a unique and dynamic conference for campus facilities, financial and planning professionals. The conference is sponsored jointly by APPA – the Association of Higher Education Facilities Officers, National Association of College & University Business Officers, and Society for College & University Planning. For more information, go to: www.campusofthefuture.org/

Management Development Program, Mt Eliza
24–29 September 2006

Each year TEFMA runs a five-day course in Leadership Development for the Facilities Manager. The course will be run at the Mt Eliza Centre for Executive Education in Victoria. TEFMA/OPUS offer a scholarship for a TEFMA member to attend the course each year. The target audience for the program is TEFMA members who are currently in middle management positions with their organisations. Further information on the course can be obtained at: www.tefma.com/PDFs/ManagementDevelopmentProgram.pdf and www.mbs.edu/

HEFMA Conference
23–26 October 2006
Pretoria, South Africa

This conference is similar to those in Australasian institutions and TEFMA and HEFMA have developed a relationship that encourages attendance at each other's conferences to broaden the exchange of information. The 2006 HEFMA Annual Conference will be hosted by the Tshwane University of Technology from 23 to 26 October 2006. The theme of the conference is: 'Facilities Management, adding value?'. Please contact Master Ngoma at ngomamd@tut.ac.za for more information. A conference website has been made available by the TUT, and can be accessed at: www.tut.ac.za/tut_web/index.php?struc=3475

Attention TEFMA members – we need you! . . .
. . . or rather, your magazine needs you.

TEFMA is a strong and growing association, reflected in the pages of your magazine ***inside****newsletter*.

Your magazine relies on the input from you – the members of TEFMA. It has been reassuring and indeed gratifying to note the increasing input from members in these pages in the past couple of years.

So please keep your informative and interesting articles – and great photographs – coming in. Whenever you feel the urge to put finger to keyboard, at any time and not necessarily just before editorial deadline, please do so and send us the fruits of your labour.

Thanks to all those TEFMA members that have contributed in the past. Now sit back and enjoy reading the current issue of your magazine.

Please send your submissions to Chris White: chris.white@rmit.edu.au
or for further information contact Chris Box on: (03) 9925 2797 or chris.box@rmit.edu.au

TEFMA BUSINESS PARTNER ADVERTORIAL

How did the company begin?

Incorporated in 1913 in the US, Trane began by producing innovations in heating products and from 1931 in air conditioning. Their first air conditioning unit was designed for use in movie theatres and office environments.

What are the company's unique services/products – for the tertiary education/facilities management sectors?

Trane Australia's operations extend throughout all states of Australia and into New Zealand. Our customer list includes an impressive collection of blue chip companies and universities.

Trane is particularly proud of its 'EarthWise CenTraVac' chiller, which we believe is the most energy efficient product of its type on the market.

Since 1994, Trane internationally has saved our customers in excess of US$140 million from more than 110 'guaranteed energy-saving' projects.

Our Building Automation Systems are state-of-the-art, user-friendly and enable the performance and adjustment of mechanical plant to be monitored remotely.

The Trane Business Practices System complies with the requirements of ISO9001:2000.

Why has it formed a partnership with TEFMA?

Trane is confident that our range of high quality Heating, Ventilating and Air Conditioning (HVAC) and Building Controls systems can contribute greatly to the Facilities Management endeavours of TEFMA's institutional members and we already have many universities as clients. Trane Australia welcomes the opportunity to further extend relationships in the tertiary education sector.

What is a recent success for the company?

Trane recently acquired Atlas Building Services and we believe the combined resources of both companies will make Trane one of the largest and most technically competent Air Conditioning and Mechanical Services organisations in Australia.

Trane Australia is committed to guaranteeing energy performance in contracts across our wide customer base. Most recently, EPC Contracts were made with the Central Coast Leagues Club and the Griffith Base Hospital

Trane Australia has delivered significant turnkey and refurbishment projects for our customers. Two large recent projects were the full mechanical and building control services for the new DIMA building in the ACT and the St James Centre refurbishment in Sydney.

What is coming up for the company?

The Trane Air Conditioning Clinics are a series of training modules on the fundamentals of Heating, Ventilating and Air Conditioning. This series has a long history with Trane worldwide and has been running in Australia for some 30 years. The Trane Air Conditioning Clinic has been well attended in locations such as Sydney, Melbourne, Brisbane and Perth, and is a well-known training course within the industry.

See their web-site page on training @ www.trane.com/AboutTrane/Contact/SalesOffice/office.asp

Why should TEFMA institutions seek out Trane in the next 12 months?

Trane Australia utilises its significant Australia-wide and international resources to support their customers' service projects. To complement our internal capability they also utilise pre-qualified expert consultants, suppliers and contractors, as needed, on a project-by-project basis.

FOR MORE INFORMATION ABOUT TRANE AUSTRALIA
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towards zero waste at unsw

Paul Osmond has been Manager of the UNSW Environment Unit since 1999, responsible for implementation of the University's Environmental Management Plan. His background includes urban design and environmental management in local government, forestry and freelance technical journalism. Paul has qualifications in science, environmental management and landscape design, and is a registered environmental auditor and Certified Environmental Practitioner. He is currently studying for his PhD in the UNSW Faculty of the Built Environment. Paul is also a member of the Green Building Council technical working group, which recently began work on a Green Star rating tool for educational buildings.

By the end of this year UNSW will have surpassed both the State Government's 2014 targets for waste reduction/resource recovery and the 2010 targets set by the University's own Environmental Management Plan. Moreover, this will be achieved in a way that focuses on highest resource value outcomes through environmentally preferred strategies of waste avoidance, reuse and on-site reprocessing.

The efforts of the Environment Unit and other units in Facilities Management will establish UNSW as a benchmark in the tertiary education sector, and a national leader in resource recovery and waste minimisation.

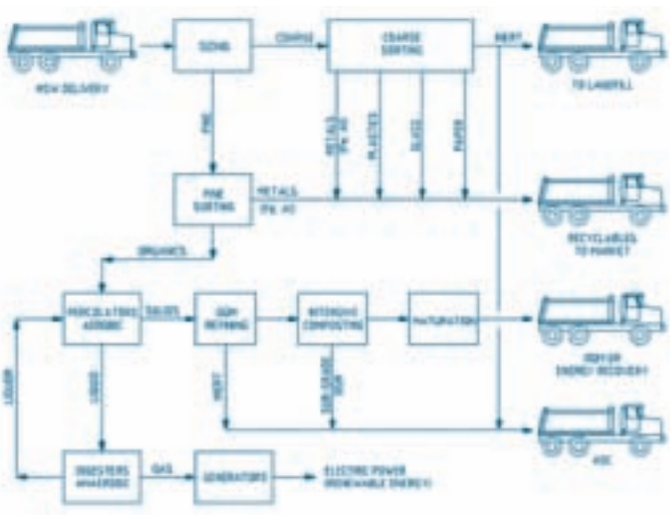
To good to be true? Then read on!

Most people think of waste as the household rubbish that the garbos collect every week alongside the paper, bottles and cans left out for recycling. UNSW does things on a much grander scale. We have no fewer than a dozen waste 'streams', from food scraps to dead computers to redundant laboratory equipment.

Management of these waste streams has involved many fingers in many pies. Some areas have been more successful than others, for example the University's paper collection, managed by Bob Wilcox and his General Services team, supplies the recycling industry with more than 600 tonnes of used paper and cardboard annually. On the other hand, a quick look in some of the skip bins located around campus reveals something of a throw-away culture of many students and staff members.

The flagship of the University's new waste management system is the combined container recycling and general garbage collection service. These materials will continue to be collected by Randwick Council, but instead of operating a separate container recycling scheme, recyclable containers will be

SIMPLIFIED FLOWCHART FOR THE URBAN RESOURCE – REDUCTION, RECOVERY AND RECYCLING SYSTEM.



collected with general rubbish in the same bin and taken to a resource recovery facility at Eastern Creek.

And no, this definitely does *not* mean we have stopped recycling containers! The previous system recovered just a tiny percentage of bottles and cans. The new system, called 'UR-3R' (for 'Urban Resource – Reduction, Recovery and Recycling') has a higher rate of recovery of recyclable containers than household kerbside recycling, recovers a much wider range of materials and provides 'safety net' recovery of paper, organics and some other materials. All organic waste materials are greenhouse stabilised to European Union standards to minimise the emission of harmful greenhouse gases.

The UR-3R facility has a direct financial incentive to maximise resource recovery, so the range and proportion of materials recovered is continually increasing. Less than 23 per cent of material collected will end up in landfill, as against nearly 99 per cent at present.

As well as many fingers in the pie, waste management at UNSW has suffered from an ongoing lack of transparency and information for users of the various services. Angus Campbell, deputy manager of the Environment Unit, has set up a user-friendly 'one-stop shop' website to provide access to the different resource recovery and waste management services, documenting how and by whom they are being managed. The URL could not be simpler: www.recycling.unsw.edu.au will take you to the relevant FM website, with links to each of the University's waste services.

The website also flags a number of new works in progress, such as laboratory equipment reuse, a major issue in an organisation with literally hundreds of labs. In addition, several existing but less than fully operational schemes, for example end-of-life computer reuse, have been revamped. Staff about to replace their obsolete, but still functioning computers have the option of donating their machine, which results in the computer being made available to financially disadvantaged members of our community via a charity with which UNSW has a memorandum of understanding. These computers are reconditioned and a proportion are returned to the UNSW Equity and Diversity Unit for donation to needy students.

Of course a website is not the only way of getting the message across. The launch of the new system will include a major exercise in bin-stickering, plus articles in the online news@unsw and in other UNSW publications, promoting the key '*Towards Zero Waste*' message as well as the specific details of what is being collected in a particulartype of bin.

To sum up, the University's new integrated resource recovery and waste management systems focus on accountability, transparency and service delivery – terms that we can all expect to hear a lot more of over the next few years.

tefma **business partners**

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NB: Every effort has been made to ensure the accuracy of the information in the TEFMA Business Partners list. Please notify TEFMA if there is a discrepancy or if there is a change in contact details.

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article **submissions**

We welcome submissions from TEFMA members for insidenewsletter.

Articles should be accompanied by a short biography (40–70 words, including institution and title) and a head and shoulders photograph of the author; please include any relevant pictures or graphs. Articles may be edited for layout purposes.

Please send your submissions to Chris White:
chris.white@rmit.edu.au

contents

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