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The OECD Programme on Educational Building (PEB)

The Programme on Educational Building (PEB) operates within the Organisation for Economic Co-operation and Development (OECD). PEB promotes the international exchange of ideas, information, research and experience in all aspects of educational building. The overriding concerns of the Programme are to ensure that the maximum educational benefit is obtained from past and future investment in educational buildings and equipment, and that the building stock is planned and managed in the most efficient way.

Fifteen OECD member countries and 12 associate members currently participate in the Programme on Educational Building. PEB's mandate from the OECD Council to advise and report on educational facilities for students of all ages runs until the end of 2006. A governing board of representatives from each participating country establishes the annual programme of work and budget.

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**EDITORIAL**

*End of an era…*

With this the 57th issue of *PEB Exchange* we mark the end of an era. In future *PEB Exchange* will be available free online. Many more people the world over will be able to access articles rapidly and at no cost. We will be able to make available more information, more quickly and more conveniently.

The very first *PEB Exchange* came out in March 1986. It included short articles on school building in the Netherlands; on helping communities design and build facilities in Scotland; on the cost of building schools in Australia; on laboratory equipment from the United Kingdom; on play equipment in Quebec; and on plans for new schools in New York City – all in eight pages.

By then the OECD Programme on Educational Building had been in existence for 15 years. PEB began as a forum for discussion and analysis of policy in the field of educational building in the early 1970s. Its origins can be traced to a meeting of European ministers of education which identified the rapid growth of school pupil numbers – because of both demographic change and the extension of the number of years of schooling – as an area for international co-operation. The OECD seems to have been chosen as the home for the Programme because of expertise it had developed in the Development and Economy in Educational Building project which involved Greece, Portugal, Spain, Turkey and Yugoslavia.

PEB was first and foremost a network of officials responsible in ministries of education and elsewhere for the provision of new buildings. Later came a period when school rolls were falling, and many schools were closed or merged. Attention became focused on how school facilities could be used by the communities they serve for services other than education. A series of volumes on “Building for School and Community” was published in the late 1970s.
In 1979 a major school building conference was held in Lochem in the Netherlands. This meeting took stock of many of the changes of the 1970s, and looked forward to the challenges of the 1980s. The potential impact of the rapid development of information technology (IT) was just becoming evident on the horizon and this would prove to be a constant theme of PEB work in the next 20 years.

But another trend had also been identified: the decentralisation of responsibility for educational facilities’ planning, design and management to local authorities and communities. This was not a universal trend – in the United States school districts had always had that role – and in some countries central control has been retained until the present, but it was a widely observed phenomenon. Participants at the Lochem conference – almost 200 of them – with quite different professional responsibilities felt the need to keep in touch on a regular basis. At that time there was no e-mail and little fax, and overseas telephones were so expensive that government departments rationed their use.

It was as a result of this conference that six years later PEB Exchange was born. In between times an informal newsletter called “Chestnut” was maintained by Martin Garden in Scotland. The success of that two-page newsletter convinced PEB’s then head Lizzie Gibson to launch PEB Exchange. The potential readership included school districts, local authorities, private architects and education specialists in universities, as well as PEB’s established network.

At the beginning PEB Exchange, in English and French, was distributed free to people on the PEB mailing list. Since that first issue the size and scope of PEB Exchange have continued to grow. Recent issues have run to 28 pages, and a Spanish version now exists thanks to Mexico’s Administrative Committee of the Federal Programme for School Construction (CAPFCE). The decision to move to paid subscription was taken in order to help defray some of the costs of producing and distributing an increasingly sophisticated publication. Educators, architects and officials subscribed to PEB Exchange and, at its peak, subscription income was a valuable supplement to the PEB budget. But the Internet and the World Wide Web have changed the habits and expectations of information seekers and we have come to the conclusion that PEB members, and the community of those involved in educational facilities, will be better served by free distribution of material through SourceOECD and the PEB Web pages.

As its first editor and now responsible for the Programme I would like to thank all those who have contributed over the years, and especially the two editors who have succeeded me – Cynthia Picot and Jill Gaston – for their work. Jill will continue to mastermind PEB Exchange in its new form, and contributions from readers are more than ever welcome.

Richard Yelland
Head, OECD Programme on Educational Building
Beginning of a new era

This is the last paper issue of PEB Exchange. For over 20 years the journal has been the unique vehicle for disseminating news and ideas on the evolution of school buildings. Many will no doubt miss the printed version of the PEB Exchange, which from now onwards will only be published online. I would like to thank the PEB Exchange editor Jill Gaston and the entire PEB team for their hard work over the years in producing what was an excellent publication. But this is not so much the end of an era as the beginning of a new chapter in the life of PEB Exchange. The online version will be more responsive to readers’ needs and will quickly get the key new messages out to the Programme’s members. It will also be more accessible to a wider audience.

Twenty years since PEB Exchange was first published, the world at large and the world of education have changed beyond recognition. Two major influences are shaping the development of education today. The first one is globalisation of economy. The emergence of China, India and other developing countries as major economic powers is having a huge impact on the more developed economics of the OECD countries. As much of the world’s manufacturing moves to China and the service function, including IT and financial services, is outsourced to India, we need to develop economies which are led much more by technology, research and development, and creativity. To do that OECD countries will need a highly trained and flexible workforce. That is the main reason many OECD countries are investing heavily in school buildings. We need to build exciting and inspirational school buildings which enhance teaching and learning, help to raise standards and lead to greater participation of pupils in tertiary and higher education.

Huge sums are being spent to modernise and transform the education estate. In the United Kingdom alone over GBP 5.4 billion will be spent this year, with a commitment to transform all of the country’s secondary schools and half of its primary schools over the next 20 years. We really need to make sure that these new buildings will properly serve our pupils and the communities for many years to come.

The second major influence on education has been advances in information and communications technology (ICT). When PEB Exchange was first published, there were hardly any computers in the workplace or in our schools. Today ICT has made huge inroads into education. Currently secondary schools in the United Kingdom have a ratio of computers to pupil of 1:5. We are currently building new schools which will have ratio of 1:2 and the expectation is that by 2010 the ratio will be 1:1. Computers and increasing access to Internet will completely change the way children are taught. The school of the future will be very different from the school of today. We need to be aware of this when we are designing new schools. We need to plan for developments in ICT that we are not even aware of. The only way we can do that is by ensuring that we build flexibility into our buildings so that they can be adapted to meet future technological changes.

To meet these challenges there is a lot of innovation going on in PEB member countries. We need to disseminate quickly information about various projects that are in progress or completed so that we all can learn the lessons of successes elsewhere and importantly also learn what does not work so that we do not make the same mistakes. In a digital world we can share information quickly. For that reason we will benefit from PEB Exchange being published on the Web. This is a real step forward for PEB and I hope that the online PEB Exchange will become an even more popular medium for keeping in touch and learning from each other. If we succeed then we will fulfil the original aims and the ideals of PEB.

Mukund Patel
Chairman, OECD Programme on Educational Building Governing Board
PEB and OECD Activities

Receive the New PEB Exchange

PEB Exchange is moving to an electronic version that will be offered online. To be informed when each new issue is available, please send your e-mail address to peb@oecd.org.

In order to reach a larger public, the journal’s articles will be posted on the Web for free download beginning with the next issue. PEB Exchange will be accessible through the site of the OECD Programme on Educational Building, www.oecd.org/edu/facilities/journal, and its substantial articles will also be available through SourceOECD, the Organisation’s online library of periodicals, books and statistical databases (www.sourceOECD.org). Please circulate these links within your network of people concerned with quality learning environments and keep us informed of information to share.

Conference on Architecture and Design for Young Children

An international conference entitled “Making Space: Architecture and Design for Young Children” took place in Edinburgh, United Kingdom, on 8-9 December 2005. On the first day, delegates had a chance to visit buildings and spaces created for young children in the cities of Edinburgh, Stirling and Glasgow. On the second day, lectures and discussions focused on what makes the ideal space for young children, how to approach design of spaces for early years education and how to involve children in the design process.

The conference considered the relationship between spatial environments and brain development. The renowned Finnish neurophysiologist Matti Bergstrom drew attention to the benefits of nature kindergartens as an environment for young children. Italian architect Michele Zini argued that early childhood centres should offer “a three-dimensional interface between the child and the world of other living things: children, adults, animals and plants”. Anne Meade, co-ordinator of the Early Childhood Education Centres of Innovation in New Zealand, emphasised the importance attached to outdoor space in New Zealand, where research has shown that it encourages a less risk-averse approach to play. This was a point Elena Rocchi, an architect from EMBT Architects in Barcelona, picked up on, describing how, in her experience, water could be used in children’s spaces in a safe and stimulating way.

Many speakers referred to the importance of the design process and provided examples of how children can contribute. Alison Clarke, from the Thomas Coram Research Unit in London, showed how 3- and 4-year-olds can be consulted; their contribution is seen as enhancing design as well as creating valuable learning opportunities for children. Pihla Meskanen, a founder of the Arkki School for architecture and design in Finland, asked, “Why not consider future school buildings as giant research laboratories? School buildings and their architecture could promote experiments in scales, shapes, colours, and materials, light and shadow. Natural and artificial lighting, solar power, different energy sources, energy consumption, physics, mathematics… the list is endless”. The Norwegian architectural researcher Karin Buvik highlighted some of her country’s environmentally-friendly services which have also been designed as teaching tools for environmental studies. Architect and researcher Mark Dudek reflected on some examples of Robert Owen’s early 19th century schools in Scotland that recognised the importance of the children’s environment. He also stressed the value of social networks and local knowledge in understanding how to make architectural projects for children work, and the perennial problems of small budgets and restricted time faced by architects designing for children.

The Scottish Executive presented its school and nursery building programme which provides valuable opportunities for rethinking the design of indoor and outdoor space for young children in keeping with the reforms currently taking place within children’s services. In particular, the programme offers the possibility of promoting a greater sharing of space amongst a wider range of services and assisting with transitions between services...
for children in different age groups. However, fewer pre-school services have been included within the programme than might have been anticipated. It was suggested that any new strategic framework for the early years should promote better design of spaces for young children and better integrate children’s services.

Richard Yelland, head of PEB, drew attention to the target recommended by the European Commission Childcare Network of spending 1% of gross domestic product on pre-school services – which would enable, he said, a more ambitious approach to designing space for young children.

The conference was chaired by journalist and broadcaster Kirsty Wark who told the conference, “Never has there been a better opportunity to create high quality spaces for children, and people must grasp that opportunity. Good architecture for children is as important for children as it is for adults. Giving children access to high quality spaces is a part of giving them the best start in life.”

The event was co-organised by Children in Scotland, PEB, The Scottish Executive, the Royal Incorporation of Architects (Scotland) and Children in Europe. Just under 300 architects, planners, policy makers, teachers and other practitioners from 16 countries attended.

Entries to the Architecture and Design for Young Children award were exhibited during the conference.

For more information about the conference and the award, see the September 2005 issue of Children in Scotland and the April 2005 issue of Children in Europe; contact Isabelle Etienne, isabelle.etienne@oecd.org; Lynn Gilmour, lgilmour@childreninscotland.org.uk; or visit www.childreninscotland.org.uk. A conference report will be published.

PEB COMPENDIUM SELECTION

The 3rd PEB Compendium of Exemplary Educational Facilities will feature 65 institutions representing 20 countries. The institutions cover all levels of education, from pre-primary to tertiary, and demonstrate quality in five areas relating to PEB’s recent work: safety and security, sustainability, alternative financing, community participation, and flexibility. A jury, composed of architects, government officials and education professionals, made the selection.

Candidates were asked to demonstrate how their buildings, equipment and/or grounds contribute to learning and to provide feedback from users – students, staff and other members of the community participation. Full-colour photographs and plans will illustrate the descriptions.

The book is scheduled to be launched in English and French in June, followed by an international exhibition. For information on advertising in the compendium or hosting the exhibition, please contact Jill Gaston, jill.gaston@oecd.org.

NETWORK ON SCHOOL BULLYING AND VIOLENCE

The OECD has established a network on school bullying and violence composed of 17 member countries: Australia, Belgium (Flanders), Canada, France, Germany, Hungary, Ireland, Japan, Korea, Mexico, Norway, Poland, Slovakia, Slovenia, Sweden, Switzerland and the United Kingdom. Others are expected to join as the project develops. The network launched a Web site related to physical violence in school in December 2005 at http://oecd-sbv.net/ which includes policies and programmes in participating countries. This international project was developed at the conference “Taking Fear out of Schools” held in Norway, on 12-15 June 2005.
SCHOOL BUILDINGS AND SPORTS FACILITIES IN QUEBEC

The Quebec Ministry of Education, Recreation and Sport has introduced a computerised maintenance management system for school buildings and prepared a good practice guide for sports facilities.

Computerised maintenance management system for school buildings

The ministry has invested nearly CAD 2 million in order to provide school boards with a computerised system to help decision-making with regard to the management of school buildings. This system, enthusiastically welcomed by the school boards, is to be called SIMACS (computerised maintenance management system for school board buildings).

SIMACS is the result of more than ten years’ research and development into strategic planning and the management of asset life cycle costs. This innovative product can be used to forecast maintenance and strategic rehabilitation costs for building stock over a period of 25 years. In addition to using a single method for listing inventories of buildings and their condition, SIMACS makes use of a detailed knowledge base of life cycle costs which enables building managers and owners to know the condition of their assets.

SIMACS will be provided to each of Quebec’s 72 school boards. The ministry has paid for the start-up costs as well as a training programme for school board staff. In order to facilitate the use of this new computerised tool by school boards, it has been agreed to spread the keying-in of data over a period of three years. Thus, in 2008, it will be possible to measure the general condition of all of Quebec’s school buildings.

Sports facilities guide

The Ministry of Education, Recreation and Sport, in collaboration with Quebec’s School Board Federation (FCSQ), has appointed a steering committee to prepare a good practice guide for the acquisition, fitting out and maintenance of school board sports facilities.

The specific goals of the guide are to help school managers and stakeholders to:

• Take account of the importance of maintaining quality facilities for physical activity.
• Learn about good practices with regard to acquiring and fitting out such facilities.
• Construct a maintenance programme enabling facilities to be kept safe and in good repair.
• Rapidly identify problem situations.
• Know how to recognise a serious and urgent problem.
• Work out strategies for preventing and rectifying certain dangerous situations.
• Refer, where necessary, to resources with an adequate level of expertise.

As there is little or no information about these good practices, the ministry hopes that this document will encourage stakeholders to adopt good practices when acquiring, fitting out and maintaining sports facilities. It is available on the Internet site of Quebec’s Ministry of Education, Recreation and Sport at the following address: www.mels.gouv.qc.ca/dgfe/Publications/index.html.

For further information, please contact: Jean Drouin, Direction de l’équipement scolaire, Ministère de l’Éducation, du Loisir et du Sport, tel. : 1 418 528 7577, jean.drouin@mels.gouv.qc.ca.
MEXICO'S CONGRESS ON PHYSICAL INFRASTRUCTURE IN EDUCATION

The Administrative Committee of the Federal Programme for School Construction (CAPFCE), a decentralised public body of the Government of the Republic of Mexico, hosted its “4th International Congress on the Development of Physical Infrastructure in Education” on 5-7 October 2005, in Telchac Puerto, Yucatan. Among the international organisations represented at the congress were the OECD, the Organization of American States, UNESCO and UNICEF, while Argentina, Brazil, Colombia, Chile, El Salvador, Greece, Honduras and Italy were among the countries represented. National organisations attending included school construction bodies, universities, ministries for education, public works ministries, local authorities, builders, education sector suppliers, teachers, students and the National Disaster Prevention Centre. The four themes of the congress and the proposals and agreements put forward by it were as outlined below.

Innovative Design in Educational Space. This theme highlighted the need for functional, useful, flexible and/or multi-functional design to meet the demands of multidisciplinary models of education and for educational space that makes use of modern technology. Design should be based on the principles of sustainable architecture, catering for local cultural and social needs and providing for ergonomic furnishings and facilities for pupils with differing capacities. Design should also facilitate maintenance and upkeep, and the need for mobile or transportable education centres should be planned for.

The theme New Materials and Advances in Technology underlined the need to look for alternatives for construction and fit-out which would make for safer, longer lasting and more cost-efficient schools with no loss of functionality. Hence consideration should be given to recycling, sustainable development and the use of alternative energy sources.

Another of the themes addressed by the congress was Safety in the Educational Space. Physical infrastructure is particularly vulnerable to damage from natural and man-made disasters. For this reason structures and their environs should meet the strictest standards, and the safety margins for design parameters must be higher than the average for other buildings. Periodic diagnostic testing of the condition of school buildings should be carried out, and maintenance and upkeep programmes should be established, along with programmes to prevent vandalism and delinquency.

In response to these challenges, the last theme addressed a key factor in the development of education infrastructure, Social Participation. This is fast becoming a paradigm for today’s education systems. Those responsible have a duty to generate policies and programmes to facilitate and promote community participation in the efficient planning of school building programmes, in the quality and safety of schools through co-operation and monitoring of construction and administrative processes, and in the upkeep and maintenance of school facilities.

UK SPACE MANAGEMENT RESEARCH

A research project in the United Kingdom has found that higher education institutions that use either central timetabling or charge for the use of space manage their floor areas more efficiently. The first phase of the project by the UK Higher Education Space Management Group looked into existing practice across 140 universities and colleges. The Group has published its findings and developed an interactive model which enables institutions to benchmark the size of their estate in relation to others and to determine an affordable and optimal estate size.

The GBP 400 000 project was managed by the Higher Education Funding Council for England (HEFCE).

Findings

The first phase of the project focused on three areas, each of which is the subject of a publication:

- Current space management practice across the UK higher education sector.
- The financial provision necessary for an estate that is fit for purpose.
- Key drivers of the size of the estate.
**Current space management practice**

The findings show that both full central timetabling and space charging significantly improve space performance. Higher education institutions (HEIs) that centrally timetable all their teaching accommodation use 17% less space on average than those that do not. Institutions that charge for teaching areas use an average 12% less net space than their counterparts.

The research also indicates that senior managerial involvement in space management issues is key to achieving greater efficiency of space use. For optimal use of space, managers need comprehensive data on teaching accommodation and student numbers, and need to use these effectively through good communications. Communication of space management guidelines and policies is sporadic, however, and users are not often involved in space management policy.

Cultural issues revolving around ownership of space, resistance to change and lack of trust are barriers to implementing change.

For space management to be effective, objectives need to be linked to overall institutional resource planning. The objectives need to be specific and be related not only to general-purpose teaching space but to specialist teaching, research, office and support space.

**Financial provision**

The average sustainable estate provision, *i.e.* operating, maintenance and depreciation costs, across the higher education sector is GBP 147.40 per m² of net non-residential area. The average total estate provision, *i.e.* the sustainable estate provision plus the opportunity cost of the capital tied up in buildings and the land beneath them, is GBP 192.50 per m². Both of these provisions were found to be higher than the median reported flat rate space charges actually operated by HEIs.

**Key drivers of the size of the estate**

The net internal areas of HEIs’ non-residential estates range in size from 3 000 m² to over 477 000 m². Across the sector, income – from teaching, research and other – was found to be by far the most significant driver of estate size; having an additional GBP 1 million of income is associated with having an estate 1 000 m² larger. Another driver is location; institutions in urban areas typically have a smaller estate that non-urban ones. Also, as mentioned above, space charging and the proportion of teaching space which is centrally timetabled make for a reduced estate size.

**Interactive model**

The space management research led to the development of an interactive Web-based model which enables universities and colleges to utilise good space management practices. The model has a benchmarking tool and a cost spreadsheet. The benchmarking tool can be applied to an institution’s non-residential estate using different criteria to give a predicted floor area. The spreadsheet works out how much it would cost to maintain a sustainable estate.

The model also takes into account the opportunity cost of the funds tied up in an estate where some floor space could otherwise be released for commercial or other use. It can help each institution define the optimal estate size at which it would not want to release any space – or acquire new space – in order to spend more, or less, on other areas in the institution.

Phase two of the space management project will provide additional guidelines and tools to meet space management objectives.

NETWORK ON EDUCATIONAL INFRASTRUCTURE FOR LATIN AMERICA AND THE CARIBBEAN

The first meeting of the Network on Educational Infrastructure for Latin America and the Caribbean, co-organised by the Mexican Ministry of Public Education (SEP), the Administrative Committee of the Federal Programme for School Construction (CAPFCE) and PEB, met in Mexico City on 21 and 22 November 2005. The aim of the network is to provide a framework for discussing specific issues related to educational infrastructure in the context of Latin America and the Caribbean.

The present objectives of the network are twofold:

• To define a set of international criteria that will serve to exchange knowledge on educational infrastructure in three areas: innovation, quality and security.
• To discuss methods used to measure these criteria in countries in Latin America and the Caribbean and examine the impact of these criteria at local, state and federal levels.

Five countries were represented at the network’s first meeting: Chile, Dominican Republic, Guatemala, Mexico and Nicaragua. Discussions focused on security, evaluation of quality and innovative educational spaces in various contexts at the level of the sub-continent as well as on recent PEB work on these themes.

The network’s next meeting will address security issues including natural disasters.

For further information, please contact Isabelle Etienne, isabelle.etienne@oecd.org.

US SCHOOL DESIGN SUMMIT

Students, teachers, principals, superintendents, architects and other specialists met in Washington, DC, to engage in a dialog on schools of the 21st century at the National Summit on School Design. The 200 participants from across the United States heard new and dissenting points of view, and ultimately arrived at some agreement on how the schools of the future should look, function, and support student learning and their communities. Participants debated the necessity of creating smaller schools and pondered ways to better integrate schools with the environment and community. An industry panel explored how advances in technology, furnishings, ventilation and other areas can positively impact learning. Broad consensus was found around certain concepts, such as creating community-based learning models, equity in the distribution of resources and community involvement in the design process, while other ideas remained more controversial or required further research.

The summit’s preliminary report lists some of the lessons learned:

• School size: Best practice includes creating a school-within-a-school to achieve smallness or using alternative spaces (e.g. store fronts, floors of buildings) for smaller groupings.
• Technology: This issue is becoming less about infrastructure (e.g. wiring) and more about integrating technology into a flexible learning environment. While technology can improve equity, assumptions that all new high-tech products enhance learning must be avoided.
• Location and siting: Innovative visions are stifled by exiting standards, regulations, habits and apathy. Limited land space forces communities to select sites unsuitable for schools. Co-locating with outside entities can blur a school mission and create unsustainable dependence.
• Trends in learning: It is difficult to achieving equity in applying trends.
• Finance: “Strings attached” to private donors can be a problem.
• Public process: There are trade-offs between public engagement, which is slow and messy, and saving time, as well as between upfront cost and long-term benefit. Breaking down cultural, racial and socio-economic barriers is a challenge.
• Quality of school environment: Good design matters. A school’s local context and conditions should be honoured in the design.
• Flexibility of space: Making videos of how users adapt and reconfigure spaces can serve both to train other users in how to take advantage of flexibility and to inform designers on how to adapt future designs.
The summit findings, audio recordings of certain keynote speakers and panelists, and photographs are available at www.archfoundation.org/aaf/gsbd/Events.Summit.htm. The event, which took place on 6-8 October 2005, was hosted by the American Architectural Foundation and Knowledge Works Foundation.

**STUDENT DESIGNS: SCHOOL +**

Architecture students from several countries were given an assignment to design an institution for vocational training and adult education for a real site in the Netherlands. The project, called School+, gave masters students the opportunity to benefit from both in situ work and the experience of international architecture professionals. The students developed design proposals for a multifunctional regional training centre at the Zuidas site in Amsterdam, the city’s international business hub, near the traditional Rivierenbuurt neighbourhood.

The Amsterdam Regional Training Centre (RTC), the country’s largest such institution, is planning a new community college in the Rivierenbuurt-Zuidas area. The future RTC building should address the identities of both Zuidas with its high-rise buildings and the Rivierenbuurt neighbourhood which reflects the local character of the city.

The School+ project was organised as a co-operative effort of the International Union of Architects (UIA) and the architecture faculties of the universities of Antwerp (Belgium), Eindhoven (the Netherlands) and Munster (Germany). Before preparing their designs, the architecture students from the participating universities and other European and South American countries met for a three-day workshop to explore multifunctional educational facilities as well as the roles of schools as public spaces in contemporary cities. The workshop, held at the Eindhoven Technical University, promoted dialogue between the UIA members and the new generation of young academics.

In the RTC’s vision, the relationship of education with society implies that school should be part of the urban space and that the urban space should be brought into the school. To that end, the concept for the new facilities is based on a mixture of college and community functions, where study programmes such as sports, laboratory science and art merge with community functions such as a post office, an employment office and childcare.

Nowadays, the traditional public spaces are often deserted, inhabited only by the urban poor to whom access to new public places is denied due to their poor economic or illegal situation. Within this context, the project participants investigated various topics such as hybridism, security, informality and identity.

Twenty-four designs submitted by the students, along with five short essays by architecture professors, were published in School Plus: Exploring Educational Spaces, and the most qualified proposals were presented at the UIA World Congress of Architecture in July 2005. The publication could be a useful tool for the architectural firms participating in the selection process for the future RTC building and for others seeking students’ ideas on urban vocational facilities.

*For copies of School Plus: Exploring Educational Spaces, contact: Hüsnü Yegenoglu, tel.: 31 40 247 4666, e-mail: h.h.yegenoglu@bwk.tue.nl, or Geoffrey Timmer, tel. 31 62 481 9442, e-mail: geoffrey.timmer@gmail.com*
EVALUATING QUALITY IN EDUCATIONAL FACILITIES

All students have the right to a quality learning environment. However, in many countries, the educational process is compromised by poorly constructed facilities that are vulnerable to both natural and man-made hazards, by inflexible and inaccessible learning spaces, and by badly lit, poorly constructed and inadequately ventilated classrooms. While governments agree that quality educational facilities are an important policy concern, no consensus has been reached on how to define quality. Some case studies show that involving multiple stakeholders from both public and private sectors in the design, planning and management of educational spaces can have a positive impact on student motivation and educational outcomes; however, there is little consensus about how to effectively measure quality.

In 2005, the OECD Programme on Educational Building (PEB) organised two international experts' group meetings to discuss how countries define and evaluate quality in educational facilities. The meetings' objectives were to define a set of international criteria for assessing quality, to discuss quantitative and qualitative methodologies that have been used to measure quality, and to examine the positive and negative aspects of implementing these methodologies in local, provincial, and national settings. More than 40 international experts – architects, social scientists, academics, facility evaluation specialists, and representatives from state and national administrations – from a total of 14 countries, the Organisation of American States and UNESCO participated in the meetings, held in Lisbon, Portugal, and Telchac-Puerto, Mexico.

The research and experiences of six experts are presented in this article, in addition to the lessons learned from the experts' group meetings. The director of a state construction programme describes the standards used to assess the educational adequacy of all public school facilities in the State of Maryland in the United States. A researcher presents a post-occupancy evaluation methodology used in schools in São Paulo, Brazil. Another researcher presents a data collection tool used to develop indicators on educational infrastructure in a number of municipalities in Greece. Two administrators discuss the development of norms to ensure minimum standards of quality and security in educational facilities in Mexico. Two architects present the results of a recent post-occupancy evaluation conducted in a new school in Pendão, Portugal. And an urban planner presents an international project to construct new schools in El Salvador using quality criteria.

The outcomes of the two experts' meetings include ideas for further international co-operation.

TASK FORCE TO STUDY SCHOOL FACILITIES IN MARYLAND, UNITED STATES

In 2002, a State Task Force to Study Public School Facilities was created in response to the findings of a national report, which charged the state with failing to address the issue of facility equity in school systems. The role of the task force was to review, evaluate and make recommendations regarding the adequacy of public school facilities in the State of Maryland in the United States to support educational programmes. With a total population of about 5.6 million, Maryland has 24 public school systems serving approximately 870,000 students aged between four and 18 years.

The task force's review was completed in two phases. In the first phase, 31 standards identified as having the most potential for impact on educational programmes and learning were defined and grouped into four categories:

- Health and safety (e.g., indoor air quality, fire safety and toilets).
- Educational programme support (e.g., human comfort, acoustics and student capacity).
- Instructional areas (e.g., pre-kindergarten, elementary, secondary, technology and special needs education).
- Instructional support areas (e.g., adequate space for health services, food services and teacher planning areas).

Using the 31 standards, the task force designed a survey instrument and completed a state-wide facilities survey on the present condition of Maryland's 1,342 public schools.
The second phase of the project identified the cost of bringing schools up to the standards identified in the first phase: an estimated USD 3.85 billion.

Using survey results, the task force was able to communicate to decision-makers the deficiencies in public school standards and the cost of bringing school facilities up to these standards in a tangible manner. As a result of the task force report, USD 250 million in state funding was approved for school construction for fiscal year 2006, a near 100% increase compared with the previous year.

Survey data were also used to establish local and state priorities. Local school systems found, for example, that survey results and existing local information were useful for prioritising major renovation projects. Likewise, survey data helped determine the relative priority of systemic renovation projects that address electrical, structural and mechanical building systems.

**USING POST-OCCUPANCY EVALUATION IN BRAZIL**

In Brazil, post-occupancy evaluation (POE) has been used over the last two decades by researchers at the University of São Paulo to evaluate the performance of the built environment from the perspective of the building’s users. The resulting diagnosis provides important feedback for managing the quality of the planning, programming, design and construction process, and the use, management and maintenance of the built environment. The evaluation considers users’ needs and satisfaction as they relate to a building’s functional aspects, construction system, comfort, cost-benefit and maintenance.

Post-occupancy evaluation is characterised by its multi- and inter-disciplinary nature, which espouses a systemic and integrated vision of the built environment. Many school buildings in São Paulo are of similar construction, which facilitates such an approach.

A number of qualitative methods are used to evaluate users’ needs and satisfaction with the built environment:

- Observation and mapping of activities and behaviours using graphs, photographs or videotapes.
- Open, free or semi-structured interviews with students, teaching and non-teaching staff, and maintenance personnel.
- Face-to-face questionnaires.
- Small, one-hour focus groups with all stakeholders.
- Students’ drawings or essays.

Results from POEs in Brazil have indicated a need to improve the performance and quality of public pre-school, primary school and secondary school facilities. Many students, teachers and staff have been dissatisfied with the level of environmental comfort, in particular room temperature and noise from adjacent classrooms. In addition, furniture and equipment were reportedly ergonomically unsuitable for the age groups using them, and the school building entrance, parking, toilets and educational spaces were inaccessible to students with physical disabilities. Users have also criticised the lack of security against intruders and reported problems of thefts, vandalism and graffiti.
Specific recommendations from the POEs have included improvement of space management; greater consideration of room size as it relates to educational function and to the number and age of students; increased provision of information and communications technology; improvement of fire and accident safety and of security against intruders; and improved accessibility, comfort conditions and maintenance management.

In Brazil, many problems related to school facilities could be addressed through more “humanised” architecture, which is responsive to users’ needs and incorporates construction systems that are compatible with low-cost preventive maintenance programmes. In this context, the use of an intensive participatory design such as POE can inform school facility planning and maintenance.

Paper presented by Sheila Walbe Ornstein, Architect, Urbanist, Professor  
School of Architecture and Urbanism, University of São Paulo, São Paulo City, Brazil  
Tel.: 55 11 30914571, fax: 55 11 30914539, e-mail: sheilawo@usp.br

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**EVALUATION SCHOOL BUILDINGS INDICES QUALITY SYSTEM IN GREECE**

The “Evaluation School Building Indices Quality System” (ESBI-Qsystem) aims to develop principles, methodologies and reliable, effective criteria for the evaluation of educational infrastructure. The core ideas of the project are: a) to propose and approve reliable and measurable indices, or indicators, and b) to allow comparisons of the size and features of school buildings either within the same area or from different areas or countries. The project is based on a survey of 64 schools in the Greek municipality of Egaleo in Attica from November 2004 to February 2005, and of 713 schools in 16 municipalities surrounding Attica from June 2005 to October 2005. The survey, which comprises 22 questionnaires and 200 questions, was completed by the director of each school unit, with technical assistance from the Municipality Technical Services. The survey requested data on:

- The number of students enrolled, classes, teachers, foreign students and students with special educational needs, by level of education.
- The number, ownership and age of school buildings, school operating hours, and the number and size of teaching and non-teaching spaces (indoor and outdoor), by level of education.
- The number of schools with certain security features and structural faults (e.g. parapet faults or cracks in building).
- The number of schools with maintenance requirements, by level of need (five levels, from immediate action to no action) and by type of structure or amenity (16 structures including staircases, insulation, garden and boiler room).
- Availability, condition (new, old or very old) and immediate- and short-term requirements for school equipment and furniture, such as computers and libraries.
- The number of training spaces, society offices, and spaces for social and community activities.

Three categories of indices were generated from data in the questionnaires:

- Basic pedagogical indices: students per classroom; building plot area per student; closed space area per student; students per computer; and facilities with computer laboratory spaces.
- Safety and security indices: facilities with inadequate resistance to earthquakes (structural and non-structural); facilities with an evacuation plan; facilities with safety lighting; school buildings located in potentially hazardous areas (i.e. petrol station, industrial area, etc.); facilities requiring immediate action for insulation, plumbing installations, central heating, boiler rooms, fire safety equipment, etc.
- Educational improvement and social participation indices: schools with whole-day classes, special cooking and dining rooms, safe access, toilets for pupils with special educational needs, and sports facilities.

The ESBI-Qsystem could also be a reliable tool for those responsible for the planning and management of educational programmes funded by international institutes, for example the European Investment Bank (EIB), the Council of Europe Development Bank or the World Bank. For the EIB, which performs a three-way analysis (technical, economic and financial),
Performance indicators are a reliable way to appraise educational infrastructure projects submitted for financing. In this framework, the ESBI-Qsystem could be used to evaluate real needs, to implement the appropriate actions (physical and financial), and to audit the effects throughout all stages of the programme and project cycle.

In the future, the questionnaire will be implemented in other Greek municipalities and there are proposals to administer it in other countries.

Paper presented by Emmanuel Baltas, Educational Facilities Management Expert
Athens, Greece
Fax: 302 10522 0846, e-mail: info@baltas.gr

1. At the European Council meeting in Amsterdam on June 1997, the European Commission urged the EIB “to examine its scope of intervention in the areas of education”.

DEVELOPING SCHOOL QUALITY NORMS IN MEXICO

Mexico has developed norms to improve the quality of its new and existing school facilities. This is part of the country’s new strategic, participatory approach to school building policy.

Between 1944 and 1992, Mexico constructed 150,000 school buildings, approximately 80% of its current educational infrastructure. In 1992, the Agreement for the Modernisation of Basic Education resulted in the decentralisation of the design, co-ordination and construction of educational facilities. As a result, the Secretariat of Education (SEP) administered funds directly to each state, and no longer through the Administrative Board of the Federal School Construction Programme (CAPFCE). The role of CAPFCE was transformed to that of a regulatory agency responsible for promoting and co-ordinating technical standards with respect to the construction, outfitting and furnishing of school property and facilities. In the last 30 years, the condition of Mexico’s educational facilities has been deteriorating. Today, issues such as maintenance, refurbishing and new projects require urgent attention.

To address the need for updated facilities, in 2000, SEP instructed CAPFCE to create a multi-level sub-committee to develop and promote quality norms for Mexico’s new and existing educational facilities. The sub-committee is comprised of representatives from the federal and state public sectors, the industrial, commercial and service sectors, research institutions and associations of professionals working in the construction fields. The norms would serve as reference points for the multiple state and municipal bodies responsible for executing educational physical infrastructure programmes, with the purpose of ensuring minimum standards of quality and security.
The sub-committee established two norms:

- **Norm 1. Site selection for educational property (2004).** This norm defines the minimum requirements for site selection of a new school. Its objective is to inform local authorities about geological features, land use and other issues that make a site suitable or unsuitable for selection.

- **Norm 2. Quality of educational spaces (2005).** This norm describes the “value chain”, or process required to ensure that the physical environment is functional, suitable, comfortable, hygienic and durable with respect to:
  - General planning, which includes the identification of needs, a feasibility study, permits and licences.
  - Bidding and awarding of contracts.
  - Planning, design and budgeting of the executive project.
  - Supervision, technical and administrative control, procurement and sub-contracting of construction.
  - Delivery and acceptance in accordance with the provisions of contractual clauses for all contracted parties.
  - Provision of furniture and equipment in classrooms, laboratories and workshops, according to the level of education.
  - Maintenance.

A number of programmes will inform, monitor and measure the implementation of each stage on the “value chain” in new and existing educational infrastructure. The programmes include an educational infrastructure diagnosis and needs analysis, a designer and planner co-ordination plan, and a regional design contest.

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**EVALUATING NEW SCHOOL FACILITIES IN PENDÃO, PORTUGAL**

A recently rebuilt school, the Galopim de Carvalho School in Pendão, Portugal, has undergone a useful post-occupancy evaluation.

The old school building, a temporary construction in use for 15 years, experienced constant problems with its installations and functioning. In addition, educational spaces were small, poorly resourced and generally discouraging for its students from diverse backgrounds and regions, including rural communities, ex-Portuguese colonies and socio-economically disadvantaged areas. The project to rebuild the school was presented in *PEB Exchange* no. 38 (October 1999).

The school was rebuilt in 2001 in collaboration with the school community to provide new learning opportunities to a disadvantaged student population. It was equipped with a multi-media resource centre – using audio and video projection areas and access to Internet – to support curricular activities, transversal projects and independent learning. A school-wide network was installed with information points in every classroom which allowed all students to access existing resources and data in different formats, including video. The introduction of the new equipment resulted in profound changes in the delivery of learning, producing innovative teaching and learning strategies.

In May 2005, problems of ICT maintenance, shortage of space (the new school was designed for 600 students but now enrols 800), insufficient teacher training in audio and video production, and difficulties with Internet access prompted the Ministry of Education to choose the school for a demonstration post-occupancy evaluation. The evaluation was to identify strengths and weaknesses of the new school facilities from the stakeholders’ perspectives. Its fitness-for-purpose approach allows stakeholders to negotiate performance criteria that change during the service life of buildings and vary with region, budget, government policies, social trends, building type and use. By assessing buildings in terms of actual use, rather than predicted use or briefing issues, the fitness-for-purpose approach affords independence. It also allows stakeholders to negotiate use and design simultaneously, as well as to sort out specific issues and relationships between design parameters.
The demonstration interviews at Pendão involved students, teachers and other school staff, municipal and project staff, along with a ministry officer and university observers. The principal evaluator, Chris Watson, has used this methodology successfully on some 40 educational settings and 80 non-educational settings in Australia, New Zealand and the United Kingdom since the 1980s. The method has the robustness to enable effective communication despite cultural and language differences. Recommendations from the evaluation entailed fine-tuning the existing facilities and the ways they are used, and lessons for future schools in Portugal. Issues included access to sports facilities, air quality, thermal comfort and safety.

Paper presented by Chris Watson, Architect, C. Watson Consultancy Ltd., Wellington, New Zealand
Tel: 6421 158 7874, fax: 644 385 4301, e-mail: chris.watson@postoccupancyevaluation.com

and

José Freire da Silva, Architect, Educational Facilities Directorate
General Secretariat, Ministry of Education, Lisbon, Portugal
Tel: 351 21 7811600 ext. 2835, e-mail: jose.freiresilva@sg.min-edu.pt

SCHOOL INFRASTRUCTURE PROJECT IN EL SALVADOR

The School Infrastructure Project (IMEF-UE), initiated in 2001, is a joint initiative involving the European Union and the Ministry of Education in El Salvador. One of the principal aims of the project is to repair, construct and equip schools in areas affected by Hurricane Mitch in 1998 and the 2001 earthquake. Specifically, the project seeks to improve design quality on the basis of three criteria: teaching/function, cost and maintenance. The project brought together 15 construction companies, four design companies, five furniture factories, architects, civil engineers, bricklayers, mechanics, carpenters, topographers and others to rehabilitate or construct and furnish 70 new primary schools in rural areas. In addition, the project oversaw 33 school maintenance projects and more than 100 educational programmes to improve literacy and vocational training in the country. Active participation, co-operation and co-ordination between the project team and the school community contributed to the project’s success.

In El Salvador, the Ministry of Education plays a central role in the construction of educational facilities. School construction is co-ordinated by the Social Protection and Local Development Fund (FISDL) – a public body that provides technical assistance and training on infrastructure at the local level – and non-governmental organisations. Construction is supervised by the Infrastructure Department of the Ministry of Education. Although there are no formal national school construction norms or guidelines, the Ministry of Education contracts architects and engineers to develop norms and guidelines for school design, which are included in the tender documents for new school construction. In addition, several small engineering consulting firms have considerable expertise in developing appropriate norms and standards.

Although the technical expertise and human resources needed to address problems in educational facilities exist in El Salvador, the functional quality of schools is often compromised by lack of funds. In new facilities, building deficiencies
can also be attributed to poor performance in the construction phase and to poor supervision and building control. In existing schools, there is a general lack of preventive and corrective maintenance, resulting in health and hygiene problems.

In the course of the School Infrastructure Project, the functional design of existing school buildings, in particular kitchens, toilets and classrooms, was improved. Insulated sandwich-roof sheets were constructed to lower room temperature, window areas were increased to maximise daylight and the quality of concrete block masonry was improved. Seminars were organised with the building sector on problems related to construction finish and craftsmanship and on improvements needed. In the course of the IMEF project, school building maintenance guidelines were developed for renovated schools.

Further work is required to improve the design and quality of the school building stock in El Salvador and its seismic resistance.

Paper presented by Kurt Lange, Head of Infrastructure, European Union IMEF School Infrastructure Project, El Salvador Tel./fax: 45 33241303, e-mail: kl@kurt-lange.dk, www.proyectoimef.org.sv.

BUILDING ON LESSONS LEARNED

Defining quality

So what does the wealth of existing knowledge and good practice tell us about providing quality educational facilities? Can experts agree on what constitutes “quality” in design?

Experts participating in the Portugal and Mexico meetings took the first steps towards establishing an international framework, comprising a definition, principles and criteria of quality facilities. The framework also considers a number of parameters within which quality can be defined.

“All individuals have a right to a quality educational facility, a physical space that facilitates the learning process and demonstrates cost-effectiveness over time; one that respects and is in harmony with the environment; and one that encourages social participation, providing a healthy, comfortable, safe, secure and inspirational setting for its occupants.

“Universal parameters – reflecting temporal, local and concrete quality dimensions – such as flexibility, sustainability, and preventive and corrective maintenance can be used to evaluate the physical space that defines a school.”
Further to this definition, experts identified criteria for assessing school building quality along with six universal principals. Facilities should be: fit for purpose (i.e. meet the educational requirements of a school and the needs of its users); inspirational and symbolic; environmentally sustainable; healthy and comfortable; safe and secure; and cost-effective. However, caution must be exercised when applying these principles to other contexts, such as educational policy priorities; and the existence and architectural interpretation of building codes and regulations must be considered.

Experts agreed that the overall aim of the framework is to “bridge the gap” between architecture and education, addressing the fundamental question, “How do educational facilities contribute to educational goals, educational effectiveness, educational policy and educational quality?”.

**Evaluating quality**

Experts identified a number of successful approaches, involving both qualitative and quantitative research methods, for evaluating the quality of the built environment. Post-occupancy evaluation, which has been implemented in Brazil, New Zealand, Portugal, the United Kingdom and United States, uses a variety of qualitative techniques such as interviews, observation, walkthroughs and focus groups by one or several evaluators, with a high degree of stakeholder involvement. In Greece and Portugal, inventories of school accommodation have been established and indicators generated to identify areas of greatest need. In El Salvador and Mexico, norms are being developed to ensure minimum standards of quality in new building construction, maintenance and equipment.

While there is no single best approach for evaluating quality, several broad guidelines must be followed when defining and implementing an evaluation methodology. The approach used must be:

- **Multi-disciplinary and inter-disciplinary**, bringing together people from the fields of education, architecture, engineering, child psychology, anthropology, environmental psychology, sociology and public policy.
- **Participatory**, ensuring early and continuous dialogue with policy-makers, students, teaching and non-teaching staff, parents, educationalists, financial bodies, architects, the media, facilities and asset managers, and researchers.
- **Holistic**, providing a systemic and integrated vision of a built environment throughout all phases of the facility’s life cycle – from planning to project delivery to occupation and management – as well as of society’s life cycle.
- **Multi-method**, incorporating aspects of appropriate qualitative and quantitative methods into the research design.
- **Purposeful and valid**, having a process, a timeframe and research questions that are clear and objectives that are tangible and ever-present. Evaluators must be neutral, trained and accredited by external authorities.
- **Policy-oriented**, responding to and influencing policy.

**Further international co-operation**

Experts expressed a common desire to continue PEB’s work to promote international co-operation on quality criteria for educational infrastructure, with the goal of raising community and government awareness. This work could include establishing a working group on facilities methodology involving experts and administrators from countries interested in developing and implementing an international study to evaluate quality in educational facilities. The approach would address established quality principles and criteria at each phase of a building’s life cycle. The methodology for this study could involve, for example, developing an online tool that different stakeholders could use to assess the needs and satisfaction of users; or conducting a number of school visits in different countries, with walkthroughs, interviews and focus groups involving multiple stakeholders.

Proceedings from the experts’ group meetings will be published in 2006. For further information on this activity, see [www.oecd.org/edu/facilities/statistics](http://www.oecd.org/edu/facilities/statistics) or contact Hannah von Ahlefeld, hannah.vonahlefeld@oecd.org.
THE MAWSON CENTRE – ACCESS FOR ALL TO EDUCATION SERVICES

In the knowledge society of the 21st century everyone – not only children but every person, enterprise and organisation – will need ongoing access to a full range of quality education and training services. This principle, often espoused by the OECD and endorsed by the ministers of education in its member countries, has driven the planning and delivery of education and training services at Mawson Lakes, a new development on the outskirts of Adelaide in South Australia. The access point for these services, The Mawson Centre, which opened in 2005, was designed for the community as a whole.

Mawson Lakes is a rapidly growing community of some 10 000 residents developing around a campus of the University of South Australia and a technology park which is a major source of employment. It is the outcome of a successful joint project between the South Australian government and the business Lend Lease Communities.

In the past, planning for public education provisions in any new community has focused almost exclusively on the needs of children. Decisions about the timing, location, land requirement, design and capital needed to provide education in a new community have been dominated by one statistic: the projected number of children. The information, education and training needs of the rest of the community, including businesses, community organisations, people wanting new skills, older persons, people seeking advancement and the unemployed, have been given less consideration in initial planning. The idea that everyone will need ongoing access to a full range of education and training services is still not part of the planning process in many education authorities.

At Mawson Lakes the needs of the children (including the very young children) for well-designed, safe, environmentally-responsible infrastructure are being met with excellent school buildings, joint-use parks, a wetland interpretive centre, active partnerships involving university facilities and a number of designated spaces linking learning with the world of work.

But the focal point of the broadly conceived education and training services is The Mawson Centre which is accessible to everyone in the community: residents, visitors, people who work in the area and a burgeoning number of people who go there to learn.

The Mawson Centre is right in the heart of Mawson Lakes. It is sited on the main boulevard as part of the social, retail and cultural hub of the growing town centre.

The centre houses the office of the director of the Mawson Lakes Education Service, Alan Peucker. In a conventional arrangement, Peucker might have been accommodated in an office labelled “Principal” in the primary school, located far from the commercial zone.

The chancellery of the adjacent university campus forms part of The Mawson Centre. This is an important shift which underlines the notion that education is a central element in the life of Mawson Lakes and that the university is an integral part of the total education service.

The centre also links two of the most important education services at Mawson Lakes: a local government information service and joint school and town library. When the centre opened, these key components quickly became areas of high use.

There is a “computer barn” open throughout the year 24 hours a day which enables the whole Mawson Lakes community, including the university, to access information and learning opportunities through the latest information and communications technology. This is a vital element in a community where future prosperity will depend increasingly on the optimal use of new technology in sustaining social, economic and environmental development.
The Mawson Centre includes a suite of meeting rooms, a coffee house, an auditorium for 300 people and a set of classrooms for use by schools and other groups requiring teaching spaces.

In many respects, The Mawson Centre is an expression of ideas which are gathering strength and beginning to transform conventional approaches to the provision of educational services and infrastructure. The functional design of The Mawson Centre was influenced by existing facilities, ranging from joint school and community libraries which are familiar places in many Australian rural towns, to the mediatheques which are now becoming commonplace in Europe.

Nevertheless, The Mawson Centre remains unique and is a landmark building in the context of education services in South Australia for four main reasons:

- **Partnerships**: Partnerships between the university, the local government (Salisbury City Council), the state government (Department of Education) and the developer (Lend Lease) were fundamental to the design, location, funding and governance decisions leading to the establishment of the centre.

- **Positioning**: Positioning the centre in the heart of Mawson Lakes is a declaration that education is a core element in the everyday life of the new community.

- **Connections**: The centre brings together access to information, education and training with the social, commercial and cultural elements of 21st century life.

- **Sustainability**: The services accessed through this multi-tenanted centre can evolve in response to changes in the demographic profile of the community and in the nature of demand for services.

Now that The Mawson Centre is a physical and operational reality, the challenge is shifting towards finding the best ways to manage and govern it and to ensure that full advantage is taken by the community of the opportunities the centre provides.

*Article by Kelvin Trimper, General Manager, Sustainability Initiatives*
*Lend Lease Communities*
*PO Box 66, Salisbury South*
*South Australia 5106*
*Tel.: 61 8 8360 5432, e-mail: kelvin.trimper@lendlease.com.au*
IRELAND’S REFURBISHED ST. JOHN’S CENTRAL COLLEGE

St. John’s Central College, the third largest further education institution in Ireland, recently expanded and refurbished its facilities. The resulting site is more open to the community, and the new building spaces are designed in accordance with their social and academic functions.

Managed by the City of Cork Vocational Education Committee, St. John’s Central College is a Post-Leaving Certificate institution, providing vocational and technical training to students who have completed secondary school and to adults. St. John’s offers courses complimentary to those of its nearby sister college, Cork College of Commerce with which it shares certain facilities.

The design team was commissioned to evaluate the options available to the Vocational Education Committee to provide comprehensive further education facilities for the college. The team’s recommendations resulted in the purchase of the adjoining timber yard site adjacent to St. John’s.

The primary intention of St. John’s Central College is to prepare students for the workplace. The college can also act as a stepping stone for students who continue on to higher education. The range of over 40 courses available at St. John’s cover the areas of art and design, media technology, computers and electronics, construction, tourism and services, and applied science.

The site and the city

The college is located within a short walking distance of Cork’s bus and railway stations. The area of the college grounds is approximately 2.7 acres, nested in the middle of a city block with only a small amount of frontage onto the exterior streets. The buildings are fully revealed only upon entering the newly formed inner quadrangle. The site’s lack of visibility justified the development of a substantial four-storey building.

In 1997 when the design team began its work, St. John’s Central College comprised several separate buildings, including a single-storey building from the 1960s in a poor state of repair, Buckingham House (a 19th century sandstone building which served initially as a women’s penitentiary and subsequently as a school), the former St. John’s Church which has since been declared a protected structure, and workshop buildings in various stages of dereliction.

Removal of the 1960s building and the workshops allowed the architects to create a public space by arranging two new buildings, the four-storey main building and a canteen, to form a landscaped quadrangle. The architects’ development plan proposes to complete the edges of the quad in future by adding a glazed front to the two sides of Buckingham House and inserting a building adjacent to and linked to the former church.

Demolishing the 1960s building in the latter stage of the contract made it possible to retain most of the existing teaching facilities over the duration of the work.

A stone boundary wall separating Buckingham House from the street was also demolished, opening up the whole of the Sawmill Street frontage and creating an additional civic space. This openness allows interaction with the local community, and projects are being developed to encourage this interaction. Sawmill Street now supports the main entrance to the college and links it to the College of Commerce.

Low maintenance external finishes were chosen for the buildings. On the higher parts of the buildings, reference is made to copper spires and domes that are a familiar sight on the Cork skyline. White self-coloured render provides a neutral backdrop to the copper and the coloured opaque panels in the curtain walling.
Building spaces

The new buildings have a combined floor area of 5 200 m². Two principal movement routes through them promote social and academic interaction. Within the main building, the primary movement route dissects the building on the north-south axis while physically and visually connecting the floors. The secondary east-west movement spine connects the college entrance at Infirmary Road to the base of the south atrium in the main building via the canteen’s first floor gallery.

The ground floor of the main building is arranged differently from the other three floors and is screened by a wall following the line of the former timber yard site and thereby recalling the history of Sawmill Street. The ground floor accommodates a four-storey entrance atrium, a 72-seat lecture theatre, and a series of highly serviced engineering spaces which are accessed directly from the quad through the timber yard wall.

The building spaces are grouped according to function, and the material and structure likewise correspond to their use. On the upper floors, to the west of the movement axis, are the practical teaching spaces articulated as orthogonal fair-faced concrete block. In contrast, to the east of the spine are theoretical teaching spaces expressed as curving forms finished in smooth plaster. The arts and crafts rooms are located on the last floor and top-lit to take advantage of the north light through copper roof lights.

The library, above the lecture theatre, is shared with the College of Commerce and has large prepatinated copper walls.

The administration and staff rooms are grouped vertically and are clearly visible from a second, south atrium located at the intersection of the two movement spines.

All the interior finishes are low maintenance.

Realisation

The project was procured in two stages. An enabling works contract encompassing demolitions, piling and site surcharging was followed by the main contract which commenced in May 2003. The combined contract value was approximately EUR 12.4 million. The new buildings were put into use in April 2005.

Article by Sarah Mulrooney, Architect, Reddy O’Riordan Staehli Architects
Schoolhouse Studio, Carrigaline Road, Douglas, Cork, Ireland
Tel.: 353 21 4362922, fax: 353 21 4363048, e-mail: sarah.mulroone@orsa.ie, www.orsa.ie
PROGRESS ON EVALUATING SCHOOL BUILDINGS IN SCOTLAND

In June 2004, the Scottish Executive published guidance on evaluating completed school building projects, Building Our Future: Scotland’s School Estate, as part of the School Estate Strategy; the guidance included a case study evaluation at an Edinburgh primary school (see PEB Exchange, no. 53, October 2004). The Executive is continuing to support evaluation work on the school estate by recently holding a post-occupancy evaluation (POE) workshop for local authorities and soon publishing a further demonstration case study, this time at secondary level, at Braes High School.

POE workshop

The aims of the one-day post-occupancy evaluation workshop, held in June 2005, were to restate the purpose and benefits of undertaking evaluation and to promote the sharing of good practice among local authorities.

It was found that most local authorities in Scotland have conducted some form of evaluation on completed school building projects, although few are conducting comprehensive POE exercises.

While the purposes and benefits of carrying out POEs are appreciated by authorities, delegates identified pressure of time and lack of expertise as constraining factors affecting the level of POE activity to date. In some cases, reluctance by administrations to undertake a process which, by its very nature, may highlight flaws and mistakes in relatively new projects was also seen as an issue.

Accordingly, when it came to considering how to make POE a successful and mainstream activity across the school estate, delegates emphasised the importance of securing support for the process from their local politicians and chief officers, and building commitment from all participants to an open and transparent process.

With a number of post-occupancy evaluations now completed, some interesting issues have emerged from practical experience concerning participation, the need for balance and managing expectations.

Participation

There is widespread support for engaging school users and other stakeholders in evaluation exercises. This type of approach contributes to existing policies on consultation whereby, in the context of ongoing building programmes, feedback from a POE serves both as the completion of consultation on a particular project as well as the starting point for dialogue on subsequent projects.

Another advantage of a participative approach to POE – particularly one which is not simply questionnaire-based but which engages users in discussion – is that the process itself can support wider education policies such as citizenship, inclusion and improving school-community links.

Need for balance

With wider participation also comes the need to ensure a fair and balanced assessment of the school building. Such an assessment both establishes POE as a meaningful process for all participants and allows administrations to be comfortable in sharing the outcomes widely with others.

Interestingly, primary school evaluations often result in a positive bias and secondary schools suffer from a negative bias. This highlights the need for facilitators to anticipate such outcomes and develop techniques to address these tendencies.

For example, one authority at the workshop had found that many POE participants, particularly primary pupils and parents, were initially reluctant to criticise the school building. In some cases a degree of coaxing was required to make parents comfortable enough to give their opinion on good and bad points, and younger pupils often benefited from assistance in fully articulating their views. While it is important in general to ensure facilitators adopt a neutral role, this level of participation offered a flexibility which, on balance, was definitely beneficial.

Contrastingly, in the secondary sector it was reported that a surprisingly large number of the comments from building users was negative. The extent of this bias could perhaps have been limited by better briefing and preparation for participants prior to the fieldwork. This could have helped to set parameters, promote balanced feedback, and avoid inaccurate and
irrelevant comments. For example, asking participants to nominate their three best and three worst aspects as part of the exercise is a simple but effective mechanism to achieve balance.

Managing expectations

It is necessary to clarify at the outset of a post-occupancy evaluation what scope of action is likely to be available to address the issues raised. This can assist in managing the participants’ expectations thereby building general confidence in the process. An action plan which is fully achievable and covers all points raised in the evaluation should be developed as an integrated part of the exercise and included in the reporting of outcomes.

Braes High School evaluation

The demonstration post-occupancy evaluation at Braes High School in Falkirk was carried out by Chris Watson, a POE expert, in June 2005. The exercise involved “ walkthrough interviews” with 55 stakeholders including pupils, staff and other school users, as well as council officials and technical staff involved in the project.

The POE was conducted five years after the school had opened, making it more difficult for users to compare and contrast the present school environment with the previous one. Consequently, a number of good aspects and features were perhaps taken for granted. (This serves as a reminder that the optimum time to carry out a POE on a new building is between one and two years after opening.)

The participants on the Braes High School exercise gave positive feedback. Almost all said the process was clear and that they understood what was expected of them. Many appreciated being asked their opinions about the building, hearing other users’ views and having the opportunity to contribute to improving the design of future schools.

Stakeholders commented positively about the provision of sports facilities, the good day-lighting throughout the school, and the spacious and well-equipped classrooms. Negative aspects included the design and size of the student social area, the dining facilities and playground, and the lack of access to the sports facilities out of school hours.

Perhaps the most resounding message from the POE was one of low user confidence and satisfaction with the heating and ventilating systems throughout the building. This tends to be a common complaint in recent school building design in Scotland, and the Scottish Executive will shortly commission environmental design guidance for schools which will focus on addressing specific areas of dissatisfaction.

The POE also included a specialist sustainability component in which a group of environmental sustainability designers were invited to comment on the effects of the building on the earth. Findings indicated how quickly expectations regarding sustainable development have increased over recent years, and how even relatively recent buildings may well need to be re-examined to improve their environmental credentials. The exercise also provided a reminder that longer-term flexibility can only be assessed through evaluation as an ongoing process, and not simply a one-off event.

Sharing results

The Scottish Executive aims to establish evaluation as a regular and continuous activity so that the outcomes can complement other forms of school evaluation and inform local authorities’ school estate management plans. A key element in achieving this aim is to support the sharing of information and best practice more widely amongst stakeholders. To this end the executive is publishing a report of the June workshop and the outcomes of the Braes High School POE, both of which are available at www.scotland.gov.uk/schoolestate.

Article by Keith Thomson, School Estate Branch, Scottish Executive Education Department, Scotland, United Kingdom
Fax: 44 131 244 1474, e-mail: keith.thomson@scotland.gsi.gov.uk
OECD PUBLICATIONS

Students with Disabilities, Learning Difficulties and Disadvantages: Statistics and Indicators
This book provides an internationally comparable set of indicators on educational provision for students with disabilities, learning difficulties and disadvantages. It looks in detail at the students concerned, where they are educated (special schools, special classes or regular classes) and their level of education (from pre-primary to upper secondary). The publication also includes information on the physical provision and on student/teacher ratios and discusses policy implications concerning special education.
October 2005, 152 pages
OECD Code 962005051P1, ISBN 92-64-00980-9
EUR 40, USD 50, GBP 27, JPY 5 500, MXN 570

Education at a Glance: OECD Indicators 2005
Across OECD countries, governments are seeking policies to make education more effective while searching for additional resources to meet the increasing demand for education. The 2005 edition of Education at a Glance enables countries to see themselves in the light of other countries’ performance. It provides a rich, comparable and up-to-date array of indicators on the performance of education systems. In doing so, it represents the consensus of professional thinking on how to measure the current state of education internationally.
September 2005, 436 pages
OECD Code 962005061P1, ISBN 9264011900
EUR 58, USD 73, GBP 40, JPY 7 900, MXN 820

OTHER PUBLICATIONS

The A-Z Sketchbook of School and Design
This hand-illustrated publication is designed to cover the key areas which must be considered when refurbishing or building a school, including access, student behaviour, “future proofing”, external spaces, lockers, toilets and ventilation. Published by School Works, it aims to ensure that teachers, parents and pupils have an accessible way of communicating their thoughts and ideas on improving facilities. Participation and partnership building are at the heart of School Works’ approach, connecting those who work and learn in schools with those who design and build them.
School Works, United Kingdom
2005, 76 pages
ISBN 0-95-412582-7
Price: GBP 10 (reduced rates for bulk orders and educational projects). To order copies or make enquiries, write to mail@school-works.org.

The Language of School Design: Design Patterns for 21st Century Schools
By Prakash Nair and Randall Fielding
This work defines a graphic vocabulary that synthesises learning research with best practice in school planning and design. Presenting 25 design patterns – from student display space to indoor-outdoor connection to full spectrum
lighting – it is a practical tool and a resource for all school stakeholders involved in planning, designing and constructing new and renovated schools and evaluating the educational adequacy of existing facilities.

August 2005, 118 pages, USD 35
ISBN 0-97-626700-4
See www.designshare.com for more information.

**Bilan énergétique 2003-2004 du réseau des commissions scolaires**
(2003-2004 Energy Assessment of the Quebec School Boards Network)

The Government of Quebec had set a target of reducing greenhouse gas emissions for the building stock of Quebec by 20% between 1990 and 2008. According to this report, the school boards have succeeded in reducing these emissions by 22.6% since 1990, largely through the conversion of heating systems. However, during the 2003-2004 school year, the number of buildings using fuel oil as the main source of heating rose from 489 to 522, while the number primarily using electricity decreased. This document shows that some CAD 86 million in costs were avoided through energy savings in 2003-2004. This document brings together data on energy consumption and costs provided by school boards, 99% of which participated in the assessment.

April 2005, 25 pages, French

This document is available on the Internet site of the Ministère de l’Éducation, du Loisir et du Sport at the following address: www.mels.gouv.qc.ca/dgfe/Publications/index.html. For a paper copy, contact Jean Drouin, Direction de l’équipement scolaire, Ministère de l’Éducation, Quebec, tel.: 1 418 528-7577, fax: 1 418 643 9224, e-mail: jean.drouin@meq.gouv.qc.ca.
PEB DIARY

April
24-25 – A conference entitled “The School of Tomorrow – The Learning Environment, Pedagogy and Architecture” will be organised by the Finnish National Board of Education in Helsinki, Finland. The aim is to emphasise the importance of physical factors for the quality of the school environment, schoolwork and well-being at school. There will be visits to new schools in Helsinki on both days. Contact: Reino Tapaninen, National Board of Education, Finland, tel.: 358 9 77477121, e-mail: reino.tapaninen@oph.fi.

May
7-9 – “Thought Lines: Learn, Think, Connect” will be the theme of the CEFPI Australasian 2006 annual conference. The event, to take place in Glenelg, South Australia, will build on past conferences and activities of the Council for Educational Facility Planners International in the development of stimulating and contemporary learning environments. Selected educational facilities in all education sectors, government and private, will be presented, including projects that demonstrate collaboration between educators, providers and government authorities. Barry McGaw, former OECD Director for Education, will speak on the topic Thinking Globally. Contact: events@apapdc.edu, www.apapdc.edu.au (go to “Conferences” then “CEFPI 2006”).

29-30 – “Higher Education Facilities: Issues and Trends” is the title of an international seminar to be organised in Zacatecas, Mexico, by PEB, the OECD Programme on Institutional Management in Higher Education, the Secretary of Public Education (SEP) and Mexico’s Administrative Committee for the Federal Programme for School Construction (CAPFCE). The purpose is to discuss new ideas about campus architecture and examine important trends and issues that could influence the planning, design and management of higher education institutions. Contact: Isabelle Etienne, isabelle.etienne@oecd.org.

June
14-16 – The OECD Centre for Educational Research and Innovation, in collaboration with PEB, will organise an international conference on emerging models and innovations of learning, in Merida, Yucatan, Mexico. Contact: Francisco Benavides, francisco.benavides@oecd.org.

14-17 – The Royal Architectural Institute of Canada will hold its 2006 Festival of Architecture in Vancouver. Contact: RAIC, Canada, e-mail: info@raic.org, or visit www.raic.org.

July
11-13 – The “International Educational Security Conference”, organised by the International Security Management and Crime Prevention Institute, in co-operation with PEB, will explore Challenges in Security: Understanding and Effectively Managing Security Related Risks, in Adelaide, Australia. Delegates from schools, colleges and universities from around the world will gather to share initiatives, discuss challenges and develop new strategies. Contact: Jill Fechner, ISMCP, Australia, fax: 61 7 3802 1680, e-mail: ismcp@ismcp.org, or visit www.educationsecurity.net.

The views expressed in PEB Exchange are the contributors’ own and do not necessarily represent those of the OECD Secretariat.