

# PEB *EXCHANGE*

THE JOURNAL OF THE OECD PROGRAMME ON EDUCATIONAL BUILDING

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OECD 

## 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.

Eighteen OECD Member countries and eight 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 2001. A steering committee of representatives from each participating country establishes the annual programme of work and budget.

### PEB Members

Australia	Netherlands
Austria	New Zealand
Czech Republic	Portugal
France	Slovak Republic
Greece	Spain
Iceland	Sweden
Ireland	Switzerland
Korea	Turkey
Mexico	United Kingdom

### PEB Associate Members

Albania Education Development Project
Het Gemeenschapsonderwijs (Belgium)
Ministerium der Deutschsprachigen Gemeinschaft (Belgium)
Province of Quebec (Canada)
Regione Emilia-Romagna (Italy)
Regione Toscana (Italy)
Service général de garantie des infrastructures scolaires subventionnées (Belgium)
Tokyo Institute of Technology (Japan)

# PEB AND OECD ACTIVITIES

## SLOVAK REPUBLIC BECOMES MEMBER

The Programme on Educational Building is pleased to welcome the Slovak Republic as a Member as of 1<sup>st</sup> January 2001. The Slovak Republic joined the Programme in 1996 as an Associate Member, after taking part in certain PEB activities for a number of years as an Observer. The decision to become a full Member of PEB coincides with its joining the OECD as the Organisation's 30<sup>th</sup> Member.

The Slovak Republic, with approximately 5 400 000 inhabitants, had a gross domestic product of USD 3 651.3 per capita in 1999. The country land area is 49 035 square kilometres.

## COMPENDIUM PUBLICATION

This spring PEB will publish its second compendium of exemplary educational facilities. Fifty-five schools and universities whose buildings were judged to

effectively meet the needs of educators and students will be presented with photographs, plans and descriptions in a 168-page, full-colour publication. The *Ministère de l'Éducation du Québec* will host a launch event, scheduled for March 2001 in Quebec City, Canada, and other marketing events will follow.

## FUTURE WORK OF PEB

At the time of going to print, the PEB Steering Committee plans to meet on 18-19 January 2001 to discuss the programme of work for 2002 to 2006. A report on the meeting and on activities that are likely to be given priority during the next mandate will be published in the next issue of *PEB Exchange*.

## SCHOOLING FOR TOMORROW CONFERENCE

The OECD Centre for Educational Research and Innovation (CERI) held a conference (1-3 November 2000) on "Schooling for Tomorrow", jointly organised

by the Netherlands Ministry of Education, Culture and Science. It was attended by over 100 national representatives, experts and practitioners from 24 Member countries, with additional observers and participants from the local school- and community-based initiatives in Rotterdam.

The conference aim was to forward understanding of how different policies and innovative initiatives can address the challenges confronting schools in the future, and specifically, to identify how new forms of dialogue and partnership between the different players – including policy-makers, practitioners, experts, the private sector and communities – can be promoted. In her capacity as conference chair, Ylva Johansson, former Minister of Education, Sweden, prepared a set of conclusions which are available on the CERI Web site at <http://www.oecd.org/ceri/>. The conclusions identify main orientations for future schooling policies and refer in particular to fostering and disseminating innovation, which was addressed in the “micro” working groups that visited innovative sites in Rotterdam. “Macro” working groups discussed analysis of trends and scenarios and the need for greater development in education of forward-thinking methodologies for policy and practice. CERI will publish a new report on trends and scenarios in spring 2001.

## THE ROLE OF PRINCIPALS IN ENVIRONMENTAL SCHOOL DEVELOPMENT

Thirty school principals from nine OECD countries discussed their role and function in the process of school development at a conference held in Weillburg, Germany, in September 2000. They looked specifically at how to support the development of eco-schools (ecologically friendly schools) and “learnsapes” (places where students learn to enhance the environment) on school grounds and in a school’s neighbourhood. The conference was organised within the Environment and School Initiatives network (ENSI) of the OECD Centre for Educational Research and Innovation.

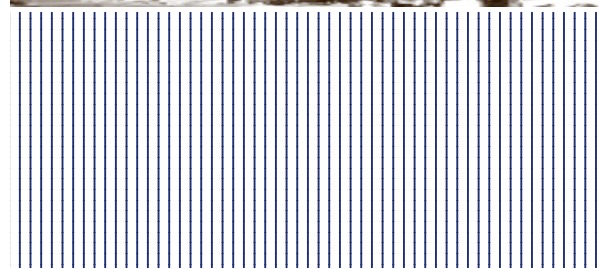
In his keynote speech, Dr. Erwin Rauscher (Austria) described the changing role of school principals in the next ten years. Increasing demands in self organisation (reporting, budget, curriculum, personnel, maintenance, etc.) will redefine the role of principals and contribute to new forms of participation of teachers, students and parents.

Reiner Mathar described German experiences in basing school development on environmental issues, developing school programmes and establishing new

forms of self-evaluation and “action” research. A three-year programme called On the Way to Environmentally Friendly Schools showed the need to combine school development with curriculum development. Classroom instruction should draw links to the way a school is organised and to school maintenance. School life and everyday practices should become the object of learning activities. New forms of problem-solving, concerning for example problems with living together in the school, are necessary to prepare young people for the future.

In 1999, the Ministries of Education of the German *Länder* (federal states) and the Federal Ministry of Education started a five-year programme on Education for Sustainable Development. The guiding questions of this programme are “What are the skills and competencies necessary to live in the 21<sup>st</sup> century?” and “How can these skills and competencies become everyday practice in German schools?” The programme also includes creating adequate learnsapes for the future. More information is available in German at <http://www.blk21.de>

The principals at the conference decided to establish an Internet-based system of exchanging and discussing good practice in school development, mainly centred on eco-schools and learnsapes. More information will be available in early 2001 on the ENSI Web site <http://www.ensi.org/>



## LEARNING AND THE PHYSICAL ENVIRONMENT – THE NORDIC NETWORK FOR THE DEVELOPMENT OF TOMORROW’S SCHOOLS

The Nordic countries face similar challenges in the school sector and therefore established a network, in March 2000, in order to share experience and knowledge regarding the connection between pedagogy and the physical framework of learning. The network first met in Oslo, with 36 participants from six countries who represented the national, regional and local administrative levels; at the municipal level, school and culture were represented. The group included staff from universities, colleges and research institutions, as well as a variety of professional groups such as school teachers, architects and principals.

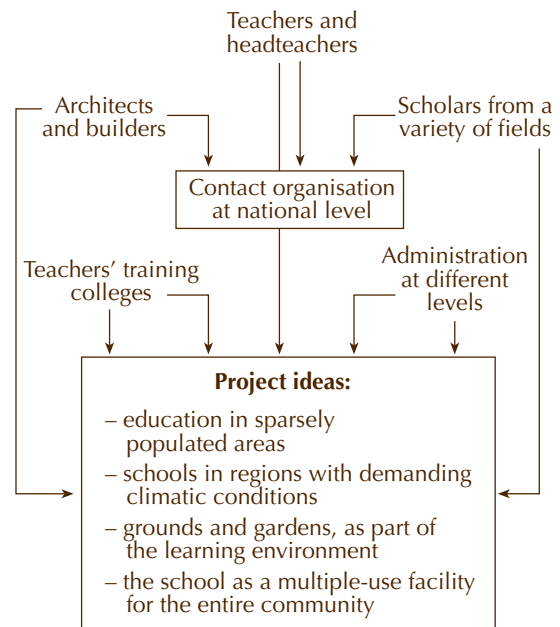
Education of young people up to 15-16 years of age in the Nordic countries is characterised by a decentralisation of school management to the municipal level, while objectives and guidelines are defined at the national level. New national curricula have recently been introduced that will influence, at least indirectly, the physical environment for teaching and learning. At the same time many existing schools are being rebuilt and new schools are being constructed.

To pursue the development of well-functioning schools, there is a need to establish cross-contacts and co-operation between different administrative levels, participants in varying areas of activity and professional groups, both nationally and internationally. Of mutual interest in the Nordic countries are projects under the following themes:

- how to provide education to people in sparsely populated areas;
- schools in areas with demanding climatic conditions;
- the grounds and gardens around the school buildings as part of the didactic milieu;
- the integration of teaching and childcare;
- the school as a multiple-use facility for the entire community;
- defining the place where young people will grow to become mature members of society; the school of tomorrow in a society of rapid change.

The educational building network, which includes Denmark, Finland, Greenland, Iceland, Norway, Sweden, the Faeroe Islands and the Åland Islands, is soliciting

support from the Nordic School Co-operation (*nordisk Skolsamarbeid*, NSS) primarily to design projects under these themes. Its next meeting will take place in Sweden in April 2001. The participants in the network are often in contact between meetings, and a Web site is planned to facilitate their exchange of information.



## PUBLIC BUILDING MANAGERS

When the newly appointed manager of public buildings in Creuse, one of France's smaller *départements*, set out to build his first secondary school, he looked for guidance to the *Club des Chargés de Patrimoine des Départements et des Régions*. This group, set up in 1988 following moves to decentralise in France, was officially recognised as a non-profit association in 2000. Its members – architects, engineers, technicians and Education Ministry officials seconded to local government – come from around half the country's local authorities. They are responsible for school buildings as well as public libraries, police stations, information centres and so on. As Chairman Philippe Druon notes, "It is a meeting point for people needing to draw on others' professional experience, usually to do with school buildings." Its discussions are a source of mutual enrichment.

The group holds meetings on topics such as safety and metal-frame buildings, the cost of public building projects and acoustics. The latest meeting, in October 2000, addressed school building and rehabilitation programmes. The main conclusions follow.

Some 14 years after responsibility for capital projects had been transferred from the central government to

the *départements* and regions under the decentralisation process, it was decided to take stock of planning practices to do with school buildings. Some 30 officials from 25 *départements* met on 19 and 20 October in Paris, together with Education Ministry officials and planning specialists.

The standard of public building projects was a key concern. This had to be considered in the round: design, suitability for teaching and other purposes, safety and capacity for change. Proper buildings cannot be put up unless users' requirements are clearly determined – and that involves education managers, teachers, pupils, parents and maintenance staff. Builders and users are thus wholly interlinked in working towards the sole final objective: education. In the early years of decentralisation, local authorities largely continued to apply the planning guides which the central government had developed. Over ten years later, these sound and reliable guides are still extensively used. But nearly half of local authorities have now prepared their own guidelines. In the last few years more and more *départements* (55%) have called on outside assistance in drawing up their programmes (project adviser, planning agencies), and this helps to raise the standard of their preparatory work and also to run more effective local consultations, at every stage, with the range of partners mentioned above.

The building programmes launched in haste in the 1970s were not the outcome of mature reflection. With hindsight, although they provided a swift response to the baby-boom problem, it is accepted that they did not produce high-quality buildings. The thought that goes into the preparation of a building programme, which can be the opportunity for constructive dialogue dealing candidly with every aspect of the project, will ensure high standards for the buildings put up by local authorities. Local players are at the centre of the discussions, naturally and legitimately involved in the process of developing public buildings. Project managers must in every case take the time for reasoned consideration.

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## **LIVING AS STUDENTS: A BOLOGNA 2000 CONFERENCE**

The city of Bologna, Italy, designated as a European City of Culture in the year 2000, welcomed a conference entitled "Living as Students" on November 16 and 17. The conference was co-organised by the City of Bologna, the Department of Architecture and Urban Planning of the University of Bologna and the Emilia-Romagna Region, with the participation of PEB. It gathered university teachers and managers from various countries as well as local authority representa-

tives. The purpose of the conference was to examine the relationship between the city and the university and to reflect on how they shape each other's identity through student life.

In parallel with the conference, an international competition on student housing was organised by the Department of Architecture and Territorial Planning of the University of Bologna, in which 30 European universities participated. Prizes were awarded to the best projects which are currently exhibited at the Esprit Nouveau Pavilion in Bologna.

These events will be presented in further detail in the next issue of *PEB Exchange*.

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## **INNOVATIVE ALTERNATIVES IN LEARNING ENVIRONMENTS**

A conference that focused on innovative alternatives in both education and its supportive architecture brought together a number of organisations last November in the Netherlands. The event was sponsored by the American Institute of Architects' Committee on Architecture for Education, Hogeschool van Amsterdam, Horizon College, STARO, the National Clearinghouse for Educational Facilities and DHV, in conjunction with PEB and the Council of Educational Facility Planners International, Urban Educational Facilities. More than 150 participants from 16 countries gathered, under the chairmanship of Bruce A. Jilk.

Herman Hertzberger, noted Dutch architect, presented his design philosophy and recent design projects. George Copa spoke about the learning processes and learning models and how they affect learning environments. Copa's thesis is that learning must shift from instruction of students to the construction of meaning by the learner.

The presentations of case studies varied from innovative open and flexible learning spaces in schools and colleges in Finland, the United States and Holland to the development of new accommodation concepts and virtual learning environments.

Six workshops dealt with the following themes and questions:

- **The Location (place) of Learning in Society (Broad School)** – There has been a long-term trend to create places for learning that neglect the other dimensions of life. It has become apparent in recent years that these "citadels" fall short. The cognitive aspects are possibly fulfilled, but other

needs (*i.e.*, social, emotional) are unmet. What should be done to serve a learner's needs more holistically, and what impact does this have on the place of learning?

- **The Space (environment) of Learning (Study House)** – The basic building block of a school design has been the classroom, a setting supportive of lecture-style instruction. Today's educators are implementing other approaches to learning, including alternative methods of instruction (seminars) as well as alternatives to instruction itself (construction). How should the spaces for learning be designed to accommodate these new approaches?
- **The Time (lifelong) of Learning** – Our educational institutions were conceived on the idea that the learner would be educated to a certain level (based on how long they attended school) and then go out into the world as a productive citizen at that level. Today we are in a rapid and constantly changing world. This requires continuous learning and unlearning. How does this – and should this – impact our learning environments?
- **The Scale (size) of Learning Settings** – Large schools have an economy of scale. However, recent studies indicate that the larger schools may be cost-effective as institutions but ineffective places to learn. There are a number of small schools that provide a higher level of learning experience at the same cost per student. Can this equity of costs be implemented with regard to the physical setting?
- **The Cost of Learning (sustainability)** – Our educational institutions require an infusion of resources to stay viable. These resources are limited at best and in many countries they are diminishing. The stress of constant change is adding to the problem. Society needs to strategize on how to sustain our investment in learning. How might the role of learning evolve toward being self-sustaining and what implications does this have on the settings for learning?
- **The Context of Learning (changes in work, family and community)** – Learning is a process that enables people to be effective in their work, families and communities. This context is different today than it was yesterday or will be tomorrow. What changes are occurring in work, family and community, and how do they affect schools?

The proceedings of "Innovative Alternatives in Learning Environments" will be published in electronic form. In addition to materials presented at the conference and compiled in workshops, a catalogue of education design innovations will incorporate information and data from all conference participants.

For more information, contact:  
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## CONDITION OF US SCHOOLS

While most of the public school buildings in the United States are at least adequate, 76%, or approximately 60 000 schools, need to expend funds for some type of repair, renovation or modernisation. The estimated total cost to fix the schools is USD 127 billion. In a survey of 903 elementary and secondary schools, half reported at least one building feature, such as heating, plumbing, roofs or sprinklers and fire alarms, in less than adequate condition, and 43% reported at least one environmental factor, such as ventilation, security or indoor air quality, in unsatisfactory condition. According to a report published in June 2000 by the National Center for Education Statistics, the average age of a public school was 40 years; the functional age (*i.e.*, years since the last major renovation) was 16 years. The full report is available online at <http://nces.ed.gov/pubs2000/2000032.pdf>

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## LEARNING THROUGH LANDSCAPES

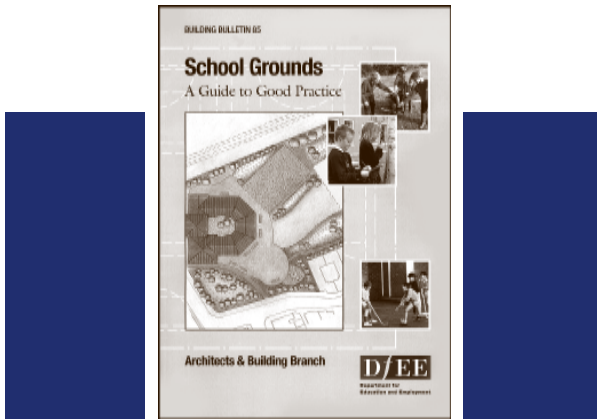
*As the UK organisation Learning through Landscapes celebrates its tenth anniversary, Sheldon Ferguson of the Department for Education and Employment looks at its achievements.*

Learning through Landscapes (LtL) was set up in 1990. Its aim is to explore and promote the use of school grounds as an educational resource. It achieves this by undertaking research, giving advice, encouraging action and supporting those who care about improving school grounds as an educational environment. Its original sponsors were the UK Department for Education and Science, the Countryside Commission and a consortium of 11 local authorities.

Learning through Landscapes has been very successful in its first ten years. Its message has spread throughout the United Kingdom, and many schools have transformed their grounds following LtL's advice. Over 3 000 schools and 80 local authorities are members of LtL which has also forged links with many other organisations in the United Kingdom and abroad.

It has made major contributions in five areas:

1. **Raising Standards** – Learning through Landscapes' efforts have helped educators realise that school grounds have a major part to play in the delivery



of the curriculum. LtL's programmes enable pupils to interact in stimulating environments, which help develop essential skills and life lessons outside the classroom and in the playground. LtL has shown that school grounds can be used to develop parts of the curriculum in a host of subjects including maths, science, geography and art.

## 2. Emphasising the Importance of Good Design –

Well-designed buildings and grounds make significant contributions to the built environment and its surrounding areas. Well-maintained grounds increase the sense of ownership and belonging. The UK Prime Minister has recently published a report on Better Public Buildings. It is important to recognise that principles of good design also apply to school grounds, and LtL has successfully conveyed this message.

## 3. Environmental Awareness –

Another aspect of LtL's work is the guidance it is giving to future generations on the importance of looking after the environment. The introduction of recycling points and the utilisation of sustainable materials to develop their grounds, e.g. the decision whether to use wooden pallets as part of a stage, compel children to look at how decisions can impact on their environment. Furthermore, the understanding of such actions helps place local decisions in a regional, national and global context, which ultimately contributes to an appreciation of the wider concepts of sustainability and environmental protection.

## 4. Increase in Community Use –

Learning through Landscapes' other noticeable work is its efforts in helping to foster links between schools, parents, community groups and local businesses. Schools are often ideally placed to provide facilities for the community. These can include facilities for sports, arts, businesses, adult education and meeting places. LtL has contributed to this by encouraging businesses to provide support through sponsorship, the offer of labour, and donations such as plants, paint and materials. The realisation of a school as a community resource raises pupils' motivation, expectations and achievements, and thus indirectly contributes to improved standards and behaviour.

## 5. Health and Sport –

Primary school children can spend up to 25% of each day within their school grounds. Understandably, LtL has given children's health considerable thought. Playgrounds are a vital resource for encouraging children to adopt an active lifestyle, and therefore aid their health and fitness. The government published *A Sporting Future for All*, a plan which maps out how it intends to raise standards in all school physical education and sport. Provision of adequate playing fields is a key to raising these standards. Not only do they help encourage a healthy lifestyle, but they also improve the local environment. LtL have given valuable advice on helping to formulate policy for the protection of school playing fields and made an impact in the development of Circular 3/99: *The Protection of School Playing Fields*.

LtL's research and publications have been widely acclaimed; major publications it has produced or contributed to are:

- DfEE Building Bulletin 71 – The Outdoor Classroom;
- LtL Report – Special Places for Special People;
- DfEE Building Bulletin 85 – School Grounds – A Guide to Good Practice.

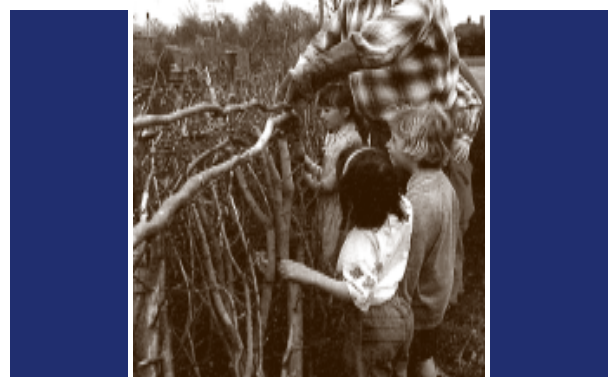
Its National School Grounds Week has become a popular annual event. In 2000, over 7 000 schools participated. Over 170 000 children have pledged to plant trees for the Millennium as part of the Esso/LtL "Trees of Time and Place" campaign.

LtL's contribution over the past ten years has been of real value, particularly for its efforts in changing attitudes towards school grounds. However, this is only the beginning and it should look to the next ten years with optimism and build upon its excellent record.

*For wider understanding of LtL's work and aims, visit the LtL Web site: [www.ltl.org.uk](http://www.ltl.org.uk)*

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# PROJECTS

## **SCHOOL DESIGN AND MANAGEMENT: THREE EXAMPLES FROM FRANCE**

What link can be established between successful teaching and learning, and school design? Three examples of large-scale school construction and renovation projects in France may go some way towards answering this question.

### **School complex in Gavray, La Manche**

In 1995, the commune of Gavray in the *département* of La Manche started thinking of building a school complex (*groupe scolaire*). The school then in use consisted mostly of “prefabs” erected in the mid-1960s. They had aged badly and the buildings themselves posed many safety problems. To these were added the difficulties occasioned by the distance between the school site and such premises as the canteen, gymnasium and sports grounds used by pupils every day. In order to get to these facilities, the students had to go through part of the town and cross a busy thoroughfare. A primary concern was thus to improve the children’s safety.

#### ***Enhancing the linkages between school cycles while avoiding school “over-population”***

After much deliberation and many meetings, in July 1997 the town council voted in favour of the project. A series of consultations was then launched, culminating with a meeting in September 1997 attended by the academy inspector, the director of departmental services in the Ministry of Education, the ministry inspector in charge of the school district, the head of the existing school complex, the college principal and numerous local politicians and parliamentary attachés. In addition to the mayor of the commune, the mayors of neighbouring towns which had children enrolled in Gavray also attended the meeting. The academy inspector immediately voiced his strong approval for the project, mainly because it would bring together on the same site the nursery and primary schools, which would then be close to the college already there. This proximity would be conducive to closer links between the various school cycles while avoiding overcrowding, each school accepting a reasonable number of pupils. The choice of the team of architects to act as prime contractor was based both on the quality of their design and



School complex in Gavray, La Manche

their vision of the future complex, and on its likely operating and maintenance costs.

#### ***A determination to involve all the interested parties in the project***

In October 1997, a working group was set up to draft a preliminary project in collaboration with the prime contractor. The group was composed of Academy representatives, teachers, town councillors and members of the parents’ association. This broad representation is worth stressing, for it shows a determination to involve all the interested parties in the project. Seven weekly meetings were needed to draw up the preliminary project. The land register was used to define needs as regards classrooms, workshops and common areas. After each meeting, minutes prepared by the prime contractor were handed out to the participants; these specified the tasks of each party before the following meeting. In January 1998, the preliminary project was completed. The mayor submitted it to the central government and departmental services. Over the next few days, the draft project was finalised and a request for funding under the Capital Equipment Allocation (*dotation globale d’équipement*), was lodged with the Prefecture. The state was prepared to finance half the cost of the project. After the various contractors had been consulted in April 1998, work began in September 1998. It lasted eleven months, enabling the school complex to be ready for the start of the 1999 school year. The weekly site meetings were attended not only by two deputy mayors but also by the head of the school.

The various documents produced during the project are extremely instructive, revealing the philosophy that governed it. On page 3 of the "Presentation of the Project" drafted in December 1997, for example, a clear conviction is expressed: "In creating the school complex, the idea of involving the future users in the design process was seen as being necessary to the project's success." The first stated objective of the project is also worth stressing: "to supply a modern teaching facility in an environment that meets today's requirements regarding the hygiene and harmony needed for a child's development." The minutes of the working group's meetings are equally instructive. As from the first meeting, teachers were invited to supply a definition of "educational goals" and "principles of organisation".

### ***Pragmatic, judicious compromises***

The meetings seem to have been conducted in a very pragmatic manner. Problems were presented and explained, goals stated and possible solutions examined before any conclusion was voted upon by the town council. Parents were also closely involved. At the third meeting, for example, they were invited to submit their desiderata concerning the creation of a day-care centre.

Negotiations sometimes took place within the working group; the fourth meeting provides an example. For the nursery school, the teachers wanted the physical education rooms for the "middle" and the "big" children to be next to one another so as to rationalise the use of the staff serving the two rooms. The teachers also wanted the "motor-function gymnastics" room to be enlarged to provide storage space for equipment. The prime contractor had no objection providing that the cost remained the same. The solutions thus constituted real compromises. Putting bunks in the sleeping-room would have reduced the amount of floor space taken up. Similarly, it was planned to re-designate a passage in the room for service staff for mixed use. Study of the regulations showed, however, that bunks were not a feasible solution. It thus became clear that the distribution of space would have to be generally reconsidered, and that the presence of the service staff's representatives would therefore be very useful. The will to find collective solutions to problems led to enlarging the consultation process to include people who were not originally planned to be involved but who obviously had their place in it.

The willingness to involve all the interested parties from the outset – and a readiness to repair any omissions in the course of the process – allowed the different persons and groups to work together on the design and educational aspects of the project. It was



*Collège Yves Montand in Allauch*

an approach that could be used again once the school was up and running.

### ***Collège Yves Montand in Allauch, near Marseilles***

#### ***A design that integrates the school into its environment***

The Yves Montand lower secondary school in Allauch in the Bouches-du-Rhône opened in September 1994. Designed for 1 000 pupils, the school is very large – altogether, the buildings and facilities occupy 28 000 square metres spread over four storeys. Its architecture may be described as modern and sober, admitting a generous amount of light into the buildings. Classrooms are grouped by block and level: general education, language laboratories, science laboratories, technology rooms and computer centre, lecture-hall, documentation and information centre, kitchens and school restaurant, and sports facilities. They are harmoniously integrated into the pleasant surroundings of a Provençal pine wood.

#### ***Premises generally well-tailored to needs, plus a successful school project***

Facilities have not been neglected: computer and video rooms, dish antennae, a server enabling parents, for instance, to consult their children's marks or the school magazine online. After six years in operation, buildings and facilities have aged quite well.

What is the quality of the teaching provided in this environment? Teaching is organised around a school

project based on an analysis of the situation, stated objectives, the action required to achieve those objectives, monitoring and evaluation. The plan provides that full use be made of the new technology (computers, telematics, video) available. It places the documentation and information centre at the heart of the teaching and cultural project, exploiting all the resources of a modern well-designed centre. Specially-designed rooms are available for holding sculpture, theatre and dance workshops. Special emphasis is put on inducting and integrating 11- to 12-year-old sixth grade pupils.

The policy has paid off, since the repeat rate among sixth graders is only 2.5%, compared with 11.3% for the Academy as a whole and 9.8% nationally. The rate of progression from sixth to tenth grade is 71.5% whereas the Academy and national norm is about 64.5%. These performances, while not in any way exceptional, are more than respectable.

### **Life in school**

Despite the school's closeness to the northern suburbs of Marseilles, it has not experienced any serious violence, although frictions do exist (some instances of rudeness and verbal aggression towards adults, more frequent cases of verbal and physical violence among pupils). Vandalising of buildings and equipment also occurs, but it is on the wane and happens less often than elsewhere. This good record in the matter of violence deserves emphasis, seeing that the school is attended by a very large number of pupils, almost 1 100, of whom 920 eat in during the week. The size of the site, while offering many advantages, raises problems of surveillance. Allocation of staff for this purpose is proportionate to the number of pupils enrolled; it does not usually take into account the area of the site.

By and large, the school, designed as a place to live and work, fulfils its function very well. The principal feels, however, that, despite its excellent features (environment and conditions, facilities), results could be improved, especially as regards the pass rate for the certificate of lower secondary education (*brevet*) (75%) and the fall-off in academic performance observed between sixth and ninth grades (14- to 15-year-old pupils).

### **Lycée Léonard de Vinci in Levallois-Perret, in the Paris inner suburbs**

The new premises of the *Lycée Léonard de Vinci* were inaugurated in 1993. Nearly 1 200 pupils are enrolled at this upper secondary school, in general, technical and vocational sections. The principal claims that it is the "archetype" of the 21<sup>st</sup> century *lycée* since it reconciles two essential goals:

- a place for acquiring knowledge and a general, technological and vocational education;
- a place for living and forging social relations.

### **Functional school architecture**

The teaching areas are distributed by department over two buildings and five storeys. Within each department the rooms devoted to a particular subject or speciality are grouped together. Pupils from very different sections (Diploma of Vocational Studies – BEP, *baccalauréat*, Advanced Technician's Diploma – BTS) use them regularly. An office is provided for the teachers of each subject. A computer network links these offices, the rooms set aside for pupils' activities, and the documentation and information centre. This centre is very large, occupying 600 m<sup>2</sup> on two levels. It is equipped with small rooms where small groups of pupils can work independently. Two staff-rooms have been built. Close by, there are five work rooms and two meeting rooms. A 230-seat auditorium offers facilities for lectures, discussion meetings and entertainment. On the "living space" side, a 1 000 m<sup>2</sup> foyer offers from the outset the impression of a modern, functional and peaceful institution. Its pillars are decorated with reproductions of Leonardo da Vinci's works.

The school is exceptionally light and airy. Patios and light-wells enhance the perception of fluid pupil movement. Pupils have their own areas: two cafeterias, game rooms and relaxation rooms where extra-curricular activities can also be conducted. The ground floor contains a room set aside for the parents' associations.

### **Creating a climate of confidence conducive to learning**

The school project is founded on the diversity of education offered (19 different examinations prepared for, from BEP to BTS) and the idea that they are all of equal value. It aims to ensure that pupils pass the BEP and then move on to the BTS. It does this successfully. It is built around two concepts: the discipline needed for the school to function harmoniously, and the dialogue required to establish a mood of mutual confidence and to build self-reliance. The school's performance is remarkable and deserves special mention. Its tenth-year pupils are slightly more socially advantaged than the national average. On the purely academic plane, however, pupils are not particularly privileged since 13.2% of them are two years behind when they enter tenth grade, compared with the national average of 6.7%. It is a known fact that the chief determining factor in academic attainment at



*Lycée Léonard de Vinci in Levallois-Perret, in the Paris inner suburbs*



the *lycée* is pupil age. What exactly do the school's attainment indicators show? In the 1999 examinations, its *baccalauréat* success rate was 84%, whereas the Academy and national norm was 78%, giving it a relative added value of 7.7%. Even more remarkable, the rate of progression from tenth grade to *baccalauréat* was 73%, whereas the national norm was only 58%, *i.e.* the school's rate was 26% higher. A final indisputable mark of the school's success is the steep increase in the number of enrolment applications from private school pupils (17.4% of the tenth-grade pupils come from these schools).

### **Other general considerations**

What general conclusions may be drawn from these three examples of building or renovation?

### ***The importance of preparatory work prior to building***

The importance of preparation well in advance of building cannot be over-emphasised. Many vital choices are made at the moment a project is envisaged: choice of site, refurbishing or new construction, quality of materials and broad design options which will be refined at a later stage.

The building of the school complex in Gavray is a revealing example. Four years elapsed between 1995, when the town authorities conceived the project, and September 1999, when the complex officially opened. The gestation period was long but fruitful. The methodology employed in drawing up and monitoring the project was exemplary in the sense that a working group was set up which included all the interested parties (local politicians, teaching and non-teaching staff, inspectors, parents, municipal technical services and, of course, the architect). The group had a clear working procedure. It met at regular intervals, kept minutes and assigned tasks of varying complexity to its members, the conclusions of which were examined and approved by the group before being forwarded for adoption by the town council. Over and above the specific contribution of this procedure – constitution of a widely-based group observing a strict methodology – to the building project itself, it had the merit of giving all those locally concerned by the life and running of the school the opportunity to work together in practical fashion, to reflect on the design problems posed by teaching and education and collectively to devise answers to those problems.

The problems in question do not vanish once a building is opened. They continue to arise during the running of the school, the aim of which is to ensure that every child gets the best possible education. The habit of working together according to a particular method, acquired when a school is under construction, should be able to survive when it is running normally. This is a practical embodiment of the wish expressed in the 1983 Decentralisation Act to see the different local education players – officials, administration, staff, users – taking part in school management, via school boards or councils.

### ***Taking teaching needs fully into account***

The preparatory work must meet a number of basic criteria, particularly as regards safety. It can also usefully take account of certain imperatives that have proved their value in other cases. The example of the *Lycée Léonard de Vinci* is worth following in this respect. Its design contains many features of special interest. The offices set aside for the teachers in each

of the subjects taught in the school can encourage co-operation among teachers of the same subject and can be used for meetings, discussions and interdisciplinary work. The same is true of the small rooms attached to the documentation and information centre which pupils can use for working in small groups. The central location of this large, modern and user-friendly centre, which the school can use as an educational and cultural focal point, should also be emphasised. Another essential factor is that the school is well-endowed with modern facilities for information technology. These, combined with the previously mentioned facilities, should provide the material conditions conducive to guided individual study and individual pupil assistance in an upper secondary school, or cross-disciplinary work and diversified career paths in a lower secondary school. Mention should also be made of the importance of facilities such as a convivial staff-room, a spacious lecture-hall, an attractive, spacious foyer decorated with reproductions of art works, a school restaurant supplemented (in a *lycée*) by one or more cafeterias and places reserved for pupil activities. Finally, there should be a room close to the entrance, distinct from the visiting room, set aside for parents' meetings.

***Important as good design is, the school project is even more fundamental***

The collective development of an architectural project and the existence of facilities which make for easier living in general and foster innovative teaching and learning methods are extremely important, but other even more fundamental factors cannot be ignored. If we take the example of the Yves Montand school, there can be no denying the excellence of its design or the exceptional attractiveness of its site. Yet the school's size, very large for a lower secondary school (over 1 000 pupils), and the difficulty in exercising permanent supervision over the whole site are a source of problems. One stems from the simple fact that, above a given number of pupils, the adults in a school, especially the administrative and teaching staff, cannot get to know all the pupils, or their families, personally. Direct human interaction is, however, partly responsible for the level of attainment by children of this age. In Allauch, the strong personal involvement of the teachers, the management and the administration has enabled – aided no doubt by the pleasant surroundings – an acceptable level of academic attainment and conviviality to be maintained.

Then there is the example of the *Lycée Léonard de Vinci*, whose school project manages to harness energies by defining the school as a place not only for learning but also for living and reaching out to the community. Discipline and dialogue are the school's

watchwords. They respond to two needs often expressed by French high school students: security and tranquillity on the one hand, contact among themselves and with the adults in charge of them on the other hand. Both these examples clearly illustrate the need for a strong educational project as the structural backbone of the school. Good building design can undeniably contribute to such a project.

In conclusion, it should be mentioned that the Ministry of Education has for many years now appointed school principals "in advance", the better to supervise the building of a new upper or lower secondary school by the local authority. Expensive as this is, it is a clear sign of the central administration's recognition of how important design considerations are to a school's future running. These pre-appointed principals cannot be content with merely monitoring the technical side of the building operations. They must also – and most importantly – do the preparatory work for the school project, which, once the school has opened, they will devise, implement and evaluate in collaboration with all the partners, and the teaching staff in particular, and thereby offer pupils the learning environment and academic opportunities worthy of the school built for them.

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## **TOWARDS A LEARNING SOCIETY: LETA 2000**

From 17 to 21 September 2000, South Australia played host to the fourth in a series of highly successful international educational events which focused on the role technology is playing and will play in the new learning environment.

LETA 2000 was one of Australia's most significant networking activities in educational technology last year. Moreover it provided an important opportunity to showcase Australia's as well as other countries' achievements in the application of information technology to learning.

The main objectives of the conference can be summarised as follows:

- to understand the importance of making lifelong learning a reality for all;
- to clarify the implications of new technologies for the learning environment;
- to identify new ideas and approaches as educational institutions respond to changes, be they schools, institutes, libraries, etc.

### **Places for learning, the built environment and the learning community**

Fundamental changes in educational facilities were discussed at LETA 2000. Some key technical, ethical and cultural factors, which will have a direct impact on the design of future schools, were at stake, such as:

- digital technology;
- multiple intelligence;
- faculty interaction;
- student comfort and safety;
- sustainable development;
- economic sustainability;
- lifelong learning.

Educational facilities were also envisaged as playing a role in fostering and supporting learning communities. A unique system of planning and provision of educational facilities, involving the community of learners and teachers as well as the adult population

in general and various authorities, was presented by Walter Koll and Cecilia Wilson. (See articles on pages 14 and 17.)

### **Libraries**

The theme of libraries was largely debated, mainly according to the following perspectives:

- the role of the library in lifelong learning;
- the role of the library in the 21st century learning environment;
- libraries as builders of social capital;
- today's opportunities for school libraries;
- university libraries.

### **New technologies**

The objective was triple:

- to understand what is real and relevant now about the impact of the new information and communication technology in the learning environment;
- to clarify the prospects of wireless and personal technology as well as the development of connected communities and how they will work;
- to identify who is really learning "online" and what the impact of online learning is likely to be for the 21st century institutions.

Some discussions revolved around selected innovative projects, new ideas and best practice examples of the application of technology in the learning environment. The focus was on educational building, asset management and the renewal of the built environment for learning.

The impact of information and communication technology on learning was exemplified by the highly interesting and innovative Technology School of the Future. (See article by John Travers, page 16.) The school is an example of how to explore the issues of teacher training and successful attempts to transform the operation of the conventional learning environment by changing the competence in information technology of both learners and teachers.

The assessment of the quality of online learning as well as the evaluation of its effectiveness were also at stake.

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## AUSTRALIA'S "PROJECT WEB": INTERNET BASED COMMUNICATION FOR CONSTRUCTION

At many points during the lifecycle of a construction project, stakeholders and project team members communicate and exchange information and documents. This is traditionally done using paper documents that are printed, copied, reviewed, e-mailed, delivered, couriered, posted and filed. Australia's New South Wales Department of Public Works and Services established a "Project Web" strategy for the purposes of demonstrating the potential of using an Internet based communication system to facilitate the procurement process.

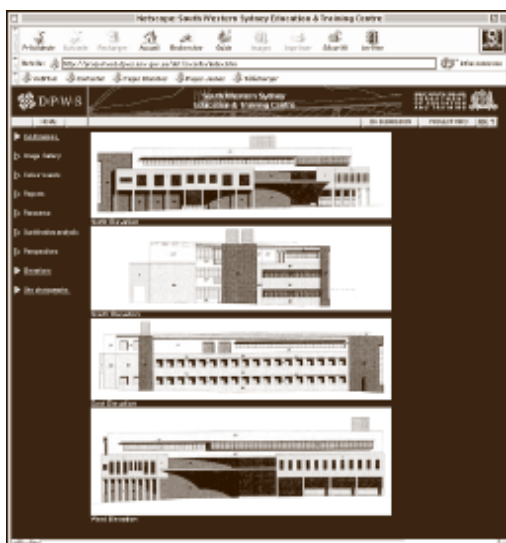
Project Web provides a central repository for all project data and information generated during a construction project's procurement phases, from concept through completion. It enables all project participants and stakeholders – client bodies, user groups, community groups, authorities, design professionals, consultants and suppliers – to access, share, collaborate, review, assess and authorise project information using Internet technology. Project Web leads to reduced costs for information transfer and delivery, shortened review and approval periods, improved information and communication to support decision-making and fewer errors.

The backbone of Project Web is an advanced document management system that supports the lodgement, storage and distribution of information with appropriate levels of security via the Internet. This allows all participants in a project to communicate and work together across different locations and time zones. Information is in one place, exists in only one version and is always current. Access to all tender documentation, site correspondence, meeting minutes, work schedules, variations, etc. are all on-line with audit trail and automatic notification.

Because it supports enhanced communication consultation and information, Project Web enables client departments to be seen as open and accessible. It gives the client access to up-to-date project information for reviewing, approving and monitoring project progress. Clients also benefit from a reduction in the procurement period and from reduced cost due to efficiency gains.

For further information, visit  
<http://projectweb.dpws.nsw.gov.au/>

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## TECHNOLOGY SCHOOL OF THE FUTURE

The Technology School of the Future is a teacher development centre in Adelaide, South Australia. In June 2000 the school moved into its new purpose-built premises that ideally suit its role: to provide teacher courses in the use of learning technologies, which often go under the name of information and communication technology. Its main tool in trade is the computer, but the school is concerned with a far wider range of technologies. The new building models old, new and emerging technologies.

The building was originally the Town Hall for local government and was built in 1880, which is very old



by Australian standards. Since then it has been home for a cinema and a roller-skating rink and was derelict for a time. The original building was extended a number of times in different but generally compatible styles. Today, the entire building houses the South Australian Education Department's Conference Centre as well as the Technology School of the Future. The Conference Centre retains only the external shell of the 1930s part of the building. The Technology School of the Future retains nearly all of the original building and is an excellent example of retention of a high quality building while adapting it to different purposes.

The Technology School of the Future houses classes for teachers and students in the use of computers and other new technologies in education. The centre is a showcase for the use of educational technologies and hosts numerous visitors as well as regular clients. It is a building designed to give a strong impression about technology, which it does very well.

The external view of the building is striking: a classical late 19<sup>th</sup> century front with an art deco addition in keeping with the original style. It is easily the largest building in the vicinity, though there are many terrace shops, hotels and churches of a similar age.

The preservation of historical buildings in Australia is now greatly valued. In spite of the difficulties of preservation – the inflexibility of the building and the expense involved in conversion to modern usage – the Technology School of the Future has been adapted very effectively. The key to the success of the design is in the addition of an administrative wing on the eastern side and the addition of a large corridor with a glass wall alongside the original wall. This provides generous lighting and close contact with and visibility of the stone and brick wall.

Glass external walls can present a problem in Adelaide's hot summer. The school's are equipped with intelligent louvres, controlled by a light sensor, which automatically descend and adjust their angle to



provide shade. In strong winds the louvres automatically retract.

The modern design features are boldly industrial: large bare steel beams and prominent stainless steel air conditioning ducting. The main stairs are a highlight of the high foyer, in large timber blocks, with steel beam supports and fibre glass balustrades.

The contrasting character of the building – steel, stone, modern, old – further contrasts with the high-tech equipment in the 11 rooms. Extensive use of glass provides views from the corridors into the rooms and between rooms. The use of glass is a highly practical feature of the building; it provides easy supervision of students as well as establishing fascinating perspective, sometimes across three rooms.

Fittings within the building are crucial to its success. All rooms have extensive power and computer networking points in concealed floor cavities. Furniture is mobile and desks are modular, allowing various configurations. The flexibility of rooms has already been proven, as different usages have been easily accommodated.

The building has been highly successful both in practical terms and as a showcase of the use of technology.

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## BRINGING LEARNING AND COMMUNITIES TOGETHER... AN AUSTRALIAN EXPERIENCE

*For New South Wales, Australia, the germination of new learning communities is often instigated, especially in "greenfield" areas, by the provision of new educational facilities. Frequently, the development of new schools is the first occasion where a community comes together to learn, discuss and contribute to the direction they wish their new school to take.*

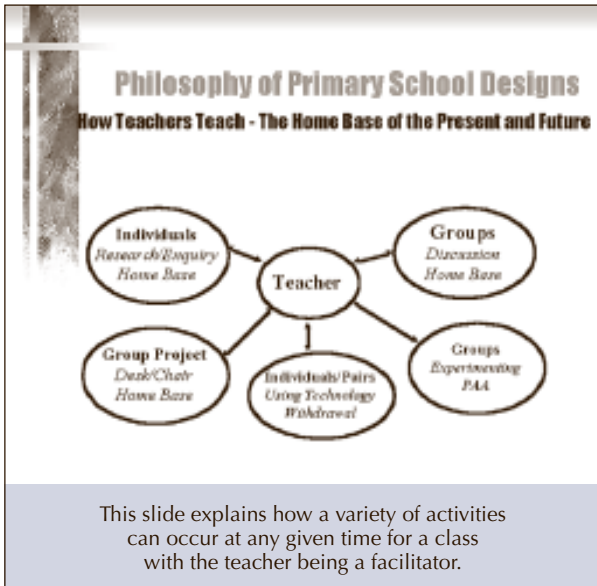
To achieve a positive learning community, an environment that fosters commitment is required. In this model the learning community must be inclusive, and it is essential that parents and community members are afforded full membership rights to the learning community. To promote this notion of "inclusiveness" there is a need to have strategies available to develop the skills and understanding of parents and teachers, separately and together.

From a facilities perspective, a major strategy developed by the Department of Education and Training to foster learning communities and encourage understanding of the role that facilities play in teaching and learning is the "Capital Works Community Presentation Kit".



The primary function of the presentation kit is to inform parents, students, teachers and other community members of the philosophies behind the design of a school, as well as of the range of facilities to be provided and the timeline for various stages to occur, and finally to outline the community's contribution

to the process. This information is an important aspect of the project. It is fundamental that the audience understands and appreciates the current philosophy of education delivery and is not reliant upon, or restricted to, their own school experiences, both good and bad. Through a simple format of presentation

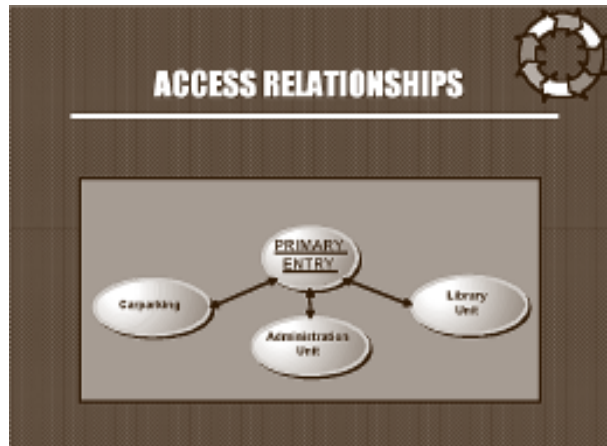


A primary school home base

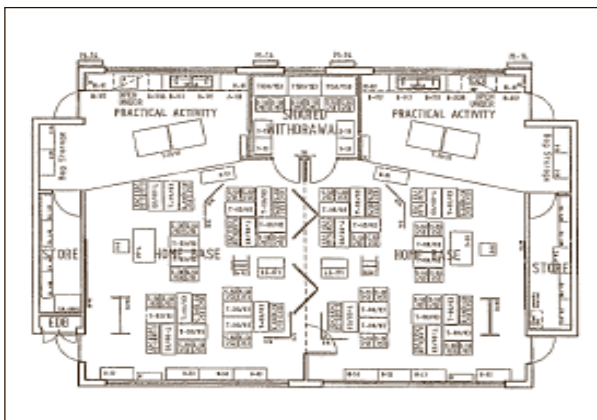
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slides, a variety of teaching and learning strategies are explained leading to the conclusion that how teachers teach and students learn actually drive and determine the type and layout of school facilities.

These preliminary teaching and learning concepts are enhanced by showing two-dimensional plans of all the school facilities together with actual photographs of the spaces so that people can relate to the "theory".



The relationships of the facilities on a school site are also explained.



A plan of a two home base complex in a primary school



Through a process of continual evaluation of new schools, relationships of facilities are also refined. This refinement minimises such things as staff and student travel distances and improves operational matters including student and staff safety.

By now the learning community has acquired a knowledge base of how and why school facilities look the way they do; it is at this point that the presentation moves on to the environment and explains how these elements can also influence learning. In particular, the themes of colour and landscape, which are significant features of a school environment, are explained.

At the conclusion of this component of the presentation where a certain level of knowledge has been imparted and a level of understanding achieved, it is time to actively engage the fledgling learning community in the design process. This active engagement may culminate in a number of decisions requiring resolution by the learning community. These decisions include the nomination of special learning facilities to support the preferred curriculum direction for the new school, the determination between alternate design layouts and colour scheme selection.

How decisions are finally arrived at is managed by the educational leader (either a school principal or district superintendent), but the process is one of collaboration within the learning community.

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## INAUGURAL MEETING OF THE AUSTRALIAN CHAPTER OF CEFPI

One of the few international associations of practitioners involved in the planning, design and operation of educational facilities is the Council for Educational Facilities Planning International (CEFPI) with headquarters in the United States.

Following a strong representation at the Baltimore International Conference of CEFPI in 1999 some 30 new Australian members have been recruited to the organisation and the Australian Chapter was formally launched at LETA 2000.

Andrew Bunting, a leading educational architect and planner from Melbourne, Victoria, was elected inaugural president of the chapter which received its charter from Ed Humble, representing the CEFPI President Jim Brady and the Board. Also present at the celebratory dinner were Dave Brittain, Prakash Nair and Bruce Jilk from the United States.

Responding to the toast to the new chapter, Bunting said, "We have a great deal to learn from each other. CEFPI offers a unique opportunity for people from architecture, education, planning and related disciplines to share ideas and information about the learning environment."

The new chapter plans to actively recruit members from Australia and New Zealand, establish a programme of research into trends in educational facilities and develop strong professional links between Australian and other CEFPI members particularly in the US and Canada.

News of the Australian Chapter will be available from the CEFPI Web site (<http://www.cefpi.org>) and from the LETA 2000 Web site (<http://www.leta2000.sa.edu.au>).



## **THE MULTIFUNCTIONAL DIGITAL CENTRE: A CONCEPT FOR DEVELOPING COUNTRIES IN THE ELECTRONIC AGE**

Higher education faces multiple problems in the new millennium, and these are especially acute in developing countries, where expansion is taking place at the same time that state financing is declining and the challenges of technology, access and the maintenance of quality loom ever larger. The idea of the multifunctional digital centre (MDC) provides an important solution to some of the problems faced by higher education in developing countries and has lessons for industrialised nations as well.

20 The multifunctional digital centre is based on a simple concept – the provision in one physical space of access to knowledge. It is part traditional library, part multimedia station, and part link to the Internet and all of the resources of cyberspace. Staffed by professionals skilled both in information technology and retrieval and in pedagogy, the MDC serves the needs of people studying in traditional academic institutions, those involved in formal study through distance education and people simply interested in acquiring knowledge and information.

The MDC is hardly a new idea. It links the old concept of the public library, committed to storing and providing knowledge without cost, with the idea of a “university extension” offering educational programmes for degrees or for specific training or personal opportunities, either on campus or at other sites. The MDC depends on skilled professionals and innovative uses of new technologies. Such a programme requires sponsorship for both funding and ideas.

The multifunctional digital centre is ideally suited to the realities and the new technologies of the 21<sup>st</sup> century. It can introduce established educational institutions, such as universities, to new approaches to communication and knowledge and provide access to people with different interests, backgrounds and needs. Public and private institutions are able to enter into co-operative arrangements. The MDC can also

provide a forum for people who are concerned with education, and in this way it can be an important contributor to the maintenance of a civil society. In short, this approach combines the technological access of the 21<sup>st</sup> century with the human interaction necessary in all eras.

### ***New Realities***

Everywhere facing new challenges, traditional academic institutions are no longer able to cope with demands for access, training and research in a growing number of fields. The problems are especially acute in developing countries.

World-wide, the demand for higher education continues to grow, but the demand is greatest in developing nations, where in 2000, half the students in post-secondary education were located.

Providing sufficient funds for higher education is especially problematical in developing countries. There is resistance everywhere to the ever-expanding public expenditures for higher education. In developing countries, enrolment pressures add to the general fiscal difficulties.

Privatisation is a key characteristic of higher education in developing countries. Private institutions, sometimes profit-making, are taking hold in higher education. In many developing countries, the private sector is the fastest growing part of the higher education system.

The knowledge revolution is dramatically altering the landscape of higher education. Knowledge is expanding rapidly, and the means of storing and distributing information is being transformed by the Internet and computer-based technologies.

Developing countries control neither the sources nor the means of delivery of the knowledge, and consequently they are in danger of being overwhelmed by the new technologies. These countries may benefit from the knowledge revolution, but at present these countries are falling further behind. Individual academic institutions in developing countries can rarely make the investments needed to access the new technologies.

### **The Advantages for Developing Countries**

The MDC concept can have key advantages for developing countries. Without question, the needs are greatest in low per capita income nations of Africa, Asia and Latin America – many of which lack adequate higher education institutions and all of which lag far

behind in Internet access and other elements of knowledge-based economy.

In countries with poorly developed basic infrastructures, including telephone systems and electricity provision, the MDC can set up a central facility able to provide basic access such as auxiliary generators, satellite-based Internet access (to circumvent unreliable telephone systems and speed up data transmission), suitable computers and adequate maintenance of facilities.

The multifunctional digital centre can promote co-operation among public and private agencies to provide support and funding. As a public facility, the MDC should generally be available without cost or at a very low cost to individuals and organisations, but it can also be supported by many agencies. Academic institutions, both public and private, government agencies, local and regional organisations, and private sector firms may all contribute. The MDC would provide technology firms with an opportunity to expose the public to the advantages of knowledge products of all kinds.

Such projects can be a conduit for support from non-governmental organisations, foreign assistance agencies, the World Bank and similar organisations. Donor groups appreciate the variety and importance of services offered and the ease of monitoring for effectiveness and fiscal accountability.

MDCs can be strategically placed throughout a country to allow access to a broad segment of the population, minimising regional disparities and political conflicts.

The multifunctional digital centre can be used as an extension agency by agencies to offer programming and access to Internet and library facilities in areas inadequately served by traditional educational institutions. The MDC will be especially useful for the burgeoning open university movement which provides academic degree study through non-traditional methods. They can serve as regional centres, resource bases and meeting places for seminars for the offerings of the open universities.

### **The Shape of the Commons**

What will a multifunctional digital centre look like? Of course, there will be variations among them, but there are central elements. It is not a virtual entity although one of its main purposes will be to provide access to the new technologies of communication and information retrieval – it is a place where several central knowledge functions are offered. It must be housed in a facility that provides both the needed

materials and adequate access. The closest analogy may be the public library, a building that provides access to information, largely through books but in some countries now through Internet based technology, and is staffed by people trained to assist people to effectively use the materials available.

But the MDC is much more than a library, not only because it emphasises several ways of accessing information, but also because its mission goes far beyond the storage and retrieval of information. It should be noted that adequate public library systems are in any case rare in developing countries and, in general, are unfortunately not seen as central elements for the information society.

The multifunctional digital centre starts with a building that houses all of the elements of the modern information society. Traditional books and journals as well as the newer technologies for knowledge retrieval and dissemination are a central part of the equation. The new technologies will, of course, play a prominent role in the MDC and will no doubt receive the bulk of attention, energy and funding. Among the elements of the revolution are the following:

- The Internet is the most powerful and in many ways the most controversial part. It is the key element of globalisation and is the means of bringing the world's storehouse of knowledge to the most remote locations. However, the Internet is dominated by a few industrialised countries, and it is increasingly commercialised. The major world languages, and especially English, dominate the Internet. The structure, organisation and financing of the Internet has, so far, largely ignored the needs of developing countries. It is, of course, necessary for developing countries to have access, but attention also needs to be given to how this powerful new mechanism can be most effectively used by them.
- Electronic mail and related communications arrangements are an essential tool to bring users in developing countries in touch with each other as well as with colleagues in the rest of the world. The MDC will provide a central node of communications for individuals and groups.
- "The electronic classroom" or seminar is in the process of development, and this tool will be a central contribution of the MDC. The ability to bring groups together electronically, through video conferencing and other means, helps to overcome isolation. The multifunctional digital centre will have facilities for group communications that can be used by educational institutions and others.
- Older "new technologies" such as CD-ROM and DVD will be a part of the services provided by the

MDC. In developing countries, it is rare that academic institutions or other organisations have ready access to these knowledge products.

A central feature of the multifunctional digital centre is a staff that provides expertise in the new technologies, as well as in traditional librarianship. Many assume that the new technologies are user-friendly and can easily be accessed – and maintained – by clients. This is far from the truth, especially in developing countries, where there is no tradition of expertise or widespread individual access to computers, the Internet or the other tools of communication. Technological librarians are a central part of the MDC concept and must play a key role. It is not enough to provide the “hardware” of technology – the human “software” of expertise must be part of the equation. An added element is the maintenance of equipment; decision-making with regard to the purchase of new machinery, software and other knowledge products is central, and often one of the weaknesses in developing countries. The MDC will need to have excellent staff and access to spare parts as well as to “upgrades” in equipment if it is to be effective and sustainable.

The location of the MDC is an issue of considerable importance, and perhaps controversy. If limited to the capital or major academic centres, the underlying concept will be lost. The MDC must be available to users outside metropolitan centres in developing countries. It will not be possible to establish one in rural areas or villages, but care must be taken to ensure that the MDC will not simply be another initiative that further strengthens the domination of the urban centres.

### **Funding the Multifunctional Digital Centre**

While the MDC will be much less costly than a university or even a specialised educational institution, it will require investment, both for initial development and long-term operation. Without adequate funding, the MDC cannot fulfil its promise, especially since information technology rapidly changes and it is important to keep up with new products and services. One of the advantages of the MDC concept is that it can receive financial support from many sources. The multifunctional digital centre should be a non-profit entity separated from direct government control. This not only permits autonomy but also makes it easier for non-governmental organisations to provide support.

Because the MDC is a public service, it must have basic support from governmental sources. Other providers can easily participate in supporting the MDC. For example, academic institutions that use MDC services can provide support, as can private enterprise. Computer and software firms, where they exist, are a natural source

of support, especially since the users of the MDC will be using computer products and familiarising themselves with the potential of computers and of information technology. Supporting the MDC is an effective way for a firm to show its support for education and the public good through a highly visible agency.

The multifunctional digital centre lends itself very well to support from external donors and such multilateral agencies as the World Bank. The MDC combines a physical facility with support for human resources. It can potentially contribute to education at all levels, and especially at the post-secondary level. It directly assists the development of civil society through providing information to people and organisations and serving as a hub for communications. Care must be taken to ensure that the basic decisions concerning choice of equipment and related issues remains with local policymakers, since external donors often seek to tie aid to particular products, and in the area of information technology, problems of compatibility may arise. Because the multifunctional digital centre serves a variety of purposes and because it is so clearly a contribution to education and socio-economic development, it will appeal to donor agencies. While it is always difficult to manage a multiplicity of funding sources, the MDC can benefit from the fact that it serves many purposes.

### **Conclusion**

The multifunctional digital centre has the potential of linking the technologies of the 21<sup>st</sup> century with the idea of community of an earlier era in a cost-effective way. It can provide universities that cannot afford sophisticated computer systems with the access that they need to the world of research and communication. It can link public and private institutions. It can attract financial supporters at home and abroad. Perhaps most important, the multifunctional digital centre is an idea that can bring information, communication and knowledge to people in developing countries.

Note: I am indebted to Kamal Ahmad for articulating the idea of the Learning Commons initially, related to the MDC, and to the staff of the Task Force on Higher Education and Society for discussions concerning it.

*This article was originally published in “International Higher Education” number 20 and was contributed by:*

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# SCHOOLS FOR THE 21<sup>ST</sup> CENTURY: ARE YOU READY?

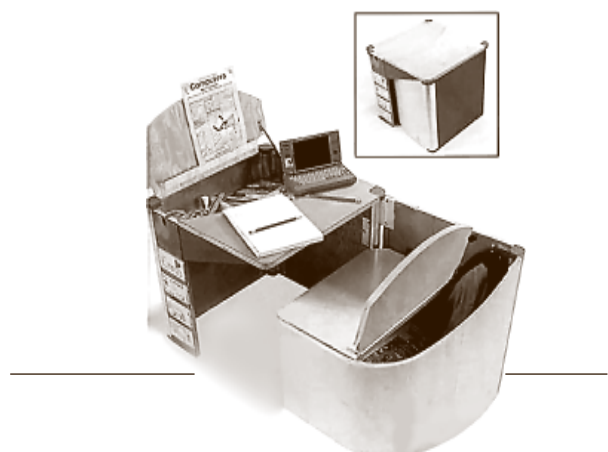
*Prakash Nair of the United States proposes the list below for evaluating how a school measures up to the most important requirements of the 21<sup>st</sup> century. It addresses architects, administrators, headteachers, pupils and others responsible for or interested in the design of a new school or the renovation of an existing building.*

There are 15 trends happening in the field of education and related educational technology. Many of them have direct facility ramifications. Use them as a checklist to see how many of these trends your school facility is designed to accommodate.

- 1. Ubiquitous Computing:** Leading educators and major school systems in the United States (including New York City which is the country's largest) have accepted the notion that all children from the fourth grade onward should have access to laptop computers and the Internet when they need it, where they need it. This view is endorsed by the US Department of Education which said in a recent report on technology, "Access to technology requires that it be readily at hand for use as needed, not simply for uses that can be predicted in advance and squeezed into a fixed time slot." From a practical standpoint we can assume that students will spend a significant amount of every school day using computers in class. By extension, we can assume that since it is impossible and impractical to put 30 PCs in every room, there will be laptops or some other portable computing device for use in the classroom.
- 2. Wireless Networking and Robust Internet Access:** While it is still a relatively new trend, wireless networking is possibly the one innovation that schools cannot afford to be without. Not only does this bring the Internet and the school network to every child in every room, but also it is now possible to painlessly bring these services to forgotten annexes and "temporary" buildings within the school grounds.
- 3. Technology-intensive Teaching and Learning:** Schools are finally figuring out that computers can redefine not only how to teach, but also *what* to teach. From a practical standpoint this has resulted in the advent of more project-based and collaborative learning and less lecture-style teaching.
- 4. Emphasis on Informal Learning:** By some measures, less than 25% of all learning occurs

within the classroom. We now know that the so-called "un-programmed spaces" in schools are extremely important because it is in these "nooks and crannies" that much of the socialisation, interaction and real learning take place. Many architects are now building such informal meeting places into the design of schools.

- 5. De-emphasis of Classrooms:** As evident from trends three and four above, the dominance of the classroom as the centre of the learning universe is now in serious jeopardy. Classrooms themselves need to be redesigned so they function well in an environment where self-directed learning and collaborative projects will largely replace "chalk and talk."
- 6. Food Court vs. Cafeteria:** Noted facility planner and writer Paul Abramson recommends that food courts replace school cafeterias. If the poor quality of cafeteria food were not reason enough, students should have greater variety in their diet and be able to eat lunch at their schedule and when they are hungry. Will this create havoc with scheduling the school day? Perhaps, but it is a challenge that institutions of higher learning have already faced and successfully overcome.
- 7. Shared Common Areas:** Reluctantly, and against the protestations of custodial personnel, schools are opening their doors to the community at large. The flip side of the coin is that many new schools are dispensing altogether with traditional auditoriums, gymnasiums and school libraries, choosing to partner instead with local community institutions to create shared common areas and high-quality media centres.
- 8. Imaginative Furniture Design:** This is an obvious area needing improvement where the impact of innovation can be immediate and significant. Fortunately, worktables and computer-friendly furniture including ergonomic desks and chairs are beginning to replace the horrendous desks and tablet armchairs that have unfortunately said "school" more loudly than anything else.



- 9. Team-teaching, Non-Chronological Grouping and Inter-disciplinary Curriculums:** This will call for more flexibility in classroom shapes and sizes including the use of temporary partitions, moveable walls, etc. The old one-size-fits-all approach will severely limit the ability of schools to provide quality 21<sup>st</sup> century education to their students and deny them the flexibility they need to implement these ideas effectively.
- 10. Emphasis on Service Learning:** More and more schools are requiring students to do some level of community service as part of their graduation requirements. Some schools have structured off-site programmes for students. The impact of this trend is that space will be freed up within schools for varying periods of time during the day. Creatively programming these spaces for the students that remain will be an interesting challenge to both architects and educators.
- 11. Students Creating Products for Business:** The numbers of tech-savvy students are rising each day even as business struggles to fill hundreds of thousands of hi-tech vacancies. Suddenly, business is finding out that partnering with schools goes beyond community outreach and can actually help them financially. For schools, such partnerships, when well managed, bring much-needed revenue and for students it provides the hands-on work experience and financial benefits that beat working in fastfood restaurants. As more students get involved with real-world projects both on and off site, it will be time to rethink equipment, room uses and space configurations in school design.
- 12. Computer Laboratories Replaced by Distance Learning Electronic Studios:** With the advent of wireless laptops, every room and every subject can be taught in a so-called “lab” setting within the primary classrooms. This frees up the traditional computer laboratory for other uses. One logical choice (since laboratories are fully wired and “technology ready”) is to convert these old laboratories into distance-learning studios where students can meet and work with experts from around the world. Such rooms can also serve as full-blown presentation “theatres” so that students get to present their work individually and in teams in a professional setting.
- 13. More Hi-tech Production Facilities:** Even as schools adopt a wireless standard, there will be increased demand for high-bandwidth applications like film and video production, broadcast journalism and the exchange of large quantities of data between partnering institutions. Wireless networks will not be ready to handle such data-

intensive tasks for several years. In the meantime, schools will need fully wired production facilities where students would work on these kinds of projects. The exact number and design of such facilities will vary by school and the educational programme it offers.

- 14. Parent and Community Educational Programmes in Schools:** Trend number seven touched upon this, but schools are realising that for technology to make a real difference in the life of a child, it is important that its effects be felt at home and in the community. Schools that have tried it find that involving parents and local community members through technology literacy programmes in school is an excellent way to improve their participation in children’s education while often improving their economic situation. A properly designed distance learning centre (preferably with monitors recessed inside glass-topped desks) as noted in item 12 above can double as the parent and community training centre in the evenings and when school is not in session.
- 15. New Learning Partnerships with Other Schools and Universities:** Ubiquitous computing and distance learning now make it possible to have real-time communication with a variety of educational partners. For example, District Four in East Harlem, New York City, now routinely runs technology-intensive interdisciplinary projects in which students from various other school districts are invited to participate.

The insular citadel that used to be school is quickly changing to a model where “school” is not just a place, but also a doorway to a lifelong learning experience. The ease with which students will be able to pass through this doorway will determine the success or failure not only of any particular school, but the institution of school itself.

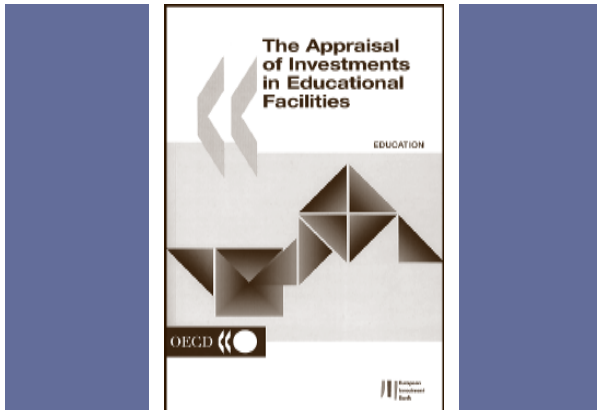
*Prakash Nair is the Director of Educational Planning for Vitetta and President of Urban Educational Facilities for the 21<sup>st</sup> Century (<http://www.designshare.com/uef.htm>). He is an internationally recognised expert in the field of school facilities and technology. He welcomes your comments, thoughts and ideas. Please contact him via e-mail at [prakash@designshare.com](mailto:prakash@designshare.com)*



# PUBLICATIONS

## OECD PUBLICATIONS

Available from OECD distributors. See page 27.



### *The Appraisal of Investments in Educational Facilities*

The appraisal of the substantial investments which are made in educational facilities remains a largely unexplored field of research. Is it possible to develop reliable and effective criteria for evaluation, given the wide range of parameters from planning and cost-effectiveness of buildings to their impact on the performance of the educational system as a whole? This question, which is facing every modern educational system, is of concern to investors and funding bodies, as well as those who are responsible for planning, managing and designing educational facilities.

February 2000, 236 pages

OECD Code 952000011P1, ISBN 92-64-17036-7

FRF 150 USD 24 DEM 45 GBP 15 JPY 2 600

### *Special Needs Education: Statistics and Indicators*

This book provides a full account of a totally new approach to making international comparisons in the field of special needs education. It makes comparisons of students with disabilities, learning or behaviour difficulties and disadvantages on the basis of the additional resources made available to them to access the curriculum, which in some countries covers some 35% of school-age students. Among the many analyses provided, the book highlights the numbers of students involved, where they are educated (special schools, special classes and regular schools) and a breakdown by gender.

Oct. 2000, 160 pages

OECD Code 962000061P1, ISBN 92-64-17689-6

FRF 230 USD 33 DEM 69 GBP 21 JPY 3 550

### *Where Are the Resources for Lifelong Learning?*

There is broad political support for lifelong learning because it is so vital to sustained economic progress and social cohesion in the "new economy". But its implementation is potentially costly and depends on making the learning process more cost-effective and on securing financial and in-kind resources from the private sector. What can be done to keep lifelong learning from becoming prohibitively expensive and to ensure that there are strong and transparent incentives to invest in it? This book looks at recent experience of selected OECD countries as they have articulated their goals and strategies for lifelong learning. It examines policies and practices that influence the rates of return to lifelong learning and mechanisms that are being put in place to channel financial resources to lifelong learning. It identifies resource issues that need to be addressed if lifelong learning is to be an affordable and workable guide to public policy.

Oct. 2000, 140 pages

OECD Code 912000031P1, ISBN 92-64-17677-2

FRF 170 USD 26 DEM 51 GBP 16 JPY 2 700

### *Strategic Asset Management for Tertiary Institutions*

Universities and other tertiary institutions maintain buildings, sites and communications infrastructure worth many millions of dollars. A more strategic approach to asset management is essential for success in a new environment, where tertiary education is becoming increasingly competitive, direct public funding is being cut back and technology and globalisation are bringing new challenges. What impact will new information technology have on space requirements? What steps can institutional managers take to manage risks in rapidly-changing circumstances? In what ways is the role of facilities managers changing, and what skills and tools will be required for them to do their job more effectively in the future? This book provides some answers to these questions and shows how the resources invested in facilities can be made to work more efficiently in the pursuit of institutional objectives. It is based on the proceedings of an international workshop that examined current trends in tertiary education policy: a more open market, student-centredness and user choice, lifelong learning and the blurring of sectoral differences.

Oct. 1999, 72 pages

OECD Code 951999011P1, ISBN 92-64-17014-6

FRF 140 USD 25 DEM 42 GBP 15 JPY 3 150

## OTHER PUBLICATIONS

### *Tableau Blanc*

By Jean-Marie Moonen



This book is a colourful dictionary of terms related to architecture for education, written for “those who dream of building a school”. From “access” to “zebra” and covering evaluation, noise, stairs and violence, it provides imaginative definitions of the elements that contribute to the design of a healthy environment for learning. The author, Jean-Marie Moonen, has recently retired from his post as Deputy Director General of the *Service général de garantie des infrastructures scolaires subventionnées*. For many years he has represented Belgium’s French Community at PEB meetings and was a member of the jury for the second PEB compendium of exemplary educational facilities.

June 2000, 82 pages

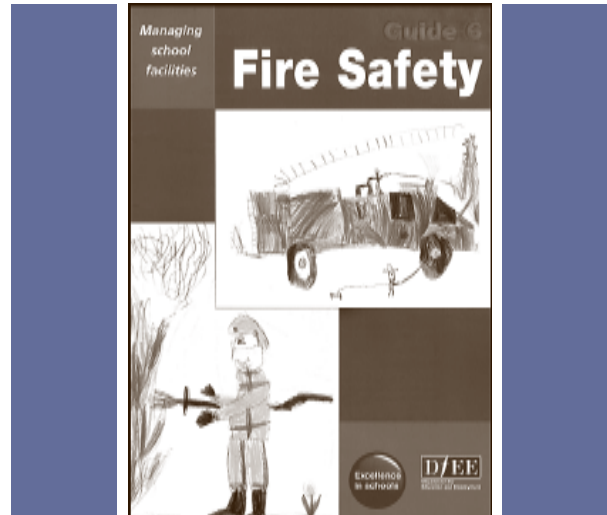
For a copy of this French-language publication, contact:

Françoise Barridez  
Service général de garantie des infrastructures  
scolaires subventionnées  
44 Boulevard Léopold II  
1080 Brussels, Belgium  
Tel.: 32 2 413 38 44, fax: 32 2 413 27 61

### *Fire Safety*

*Managing School Facilities Guide 6*

This booklet offers guidance on how to manage fire safety and minimise the risk of fire. It sets out what legislation school buildings must comply with in the United Kingdom and covers the major risks. It



describes training and evacuation procedures and provides guidance on fire precautions, alarm systems, fire fighting equipment and escape routes. The guidance is aimed at headteachers, governors, premises managers and all those concerned with making schools safer places.

Published by The Stationery Office and available from The Publications Centre  
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### *Low Energy Cooling Systems – A Summary of IEA Annex 28*

The project of the International Energy Agency on low energy cooling systems aimed to investigate the feasibility of alternative cooling strategies for buildings and to provide design tools and guidance on their application. This report contains a summary of the work carried out, including the review of technologies, detailed design tools and case study descriptions. It is designed to be accessible to the non-expert and to give an introduction to the benefits of low energy cooling.

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# PEB DIARY

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The *Ministère de l'Éducation du Québec* will host events to launch the PEB publication *Designs for Learning: 55 Exemplary Educational Facilities* in Quebec, Canada. Similar events are expected to follow in other countries. For more information, contact the PEB Secretariat.

## July

3-6 – The Environmental Design Research Association will hold its 32nd annual conference in Edinburgh, Scotland. The conference is open to design educators and professionals, planners, social scientists and others interested in the relationship of people and places and the design and management of places that are responsive to human needs. Participants will learn about the latest developments in the field of environmental design research and will exchange information on the state of behavior-oriented design and research. Contact: EDRA, Edmond, Oklahoma, USA, tel.: 1 405 330 4863, fax: 1 405 330 4150, e-mail: edra@telepath.com, <http://www.telepath.com/edra/home.html>

18-20 – CIB will sponsor the 1st International Conference on Innovation in Architecture, Engineering and Construction. The event, organised by the Adaptive Environments Center (Boston, Massachusetts, USA) and the Commission of the European Communities, will be held in Loughborough, United Kingdom. Contact: Jo Brewin, AEC2001, Loughborough University – Department of Civil and Building Engineering, Leicestershire LE11 3TU, UK, tel.: 44 1509 228549, fax: 44 1509 223982, e-mail: j.c.brewin@lboro.ac.uk, <http://www.lboro.ac.uk/cice/aec/index.html>

22-24 – The Association of Higher Education Facilities Officers (APPA) will organise its 2001 Educational Conference & 88<sup>th</sup> Annual Meeting in Montreal, Canada. Contact: Suzanne Healy, Alexandria, Virginia, USA, tel.: 1 703 684 1446, e-mail: [suzanne@appa.org](mailto:suzanne@appa.org), <http://www.appa.org>

## October

8-10 – “Federations of Learning, Research and Technology in the 21<sup>st</sup> Century” is the theme of the 2001 ATEM/AAPPA Conference which will take place in Canberra, Australia. A subtheme on facilities will consider whether buildings for tertiary education will be needed in the future and if so what they will be like. In particular, the facilities management stream will focus on areas including space management, environmental performance, interaction with academic community, the future of regulatory changes and pursuing funding opportunities. To register for the conference, complete the expression of interest form at <http://www.anu.edu.au/facilities/atem-aappa/>

Association for Tertiary Education Management Inc.  
Secretariat, O'Connor, Australia, tel.: 61 2 6249 5300, fax: 61 2 6249 5262.

17-20 – The 78<sup>th</sup> Annual International Conference & Trade Show of the Council of Educational Facility Planners International will be held in Denver, Colorado. Contact: CEFPI, 9180 E. Desert Cove Drive, Suite 104, Scottsdale, Arizona 85260, USA, tel.: 1 480 391 0840, <http://www.cefpi.org>

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