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Revisited: Leith Academy  
and the Projects that  
Followed

**Don MacKenzie**

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## AN INNOVATIVE SCHOOL REVISITED: LEITH ACADEMY AND THE PROJECTS THAT FOLLOWED

*This article is the first of an occasional series looking back at educational institutions considered innovative at the time they were designed. In 1995, PEB published a case study on the United Kingdom's Leith Academy; see the excerpt below from Redefining the Place to Learn. The following article examines the Academy's original design, how the facilities have served over the 13 years since their construction and their influence on subsequent designs.*

Completed in 1991, Scotland's Leith Academy was the first in a series of innovative schools developed by the City of Edinburgh to incorporate design principles of "planning for change" developed by the OECD Programme on Educational Building (PEB). The principles provide for a building which would not in itself be a barrier to change in a rapidly evolving future. Since its completion, Leith Academy has been the focus of close study in order to inform and refine the design of schools to be built subsequently by the city. More than a decade on, how has the building actually performed? The answer follows, along with a description of the projects that have succeeded it.

### The original design

With one of the main aims being to create a vibrant, welcoming environment for the whole community, the backbone of Leith Academy's design is a glazed street filled throughout its length with sunlight, flowering subtropical plants, colourful banners and graphics, and with views into the teaching spaces and courtyards. A café is located at the centre.

Three secondary streets, also sunlit and top-glazed, at right angles to the main street, give direct access to each department. The blocks of accommodation have a clear span of 16.8 metres, giving two bays of 7.2 metres on either side and a 2.4-metre circulation/services distribution zone.

The building was designed to accommodate an exponential increase in the use of information technology. The changes this is bringing to the learning process were anticipated in a planning, servicing and furnishing strategy which allows spaces to be interchangeable, to be easily altered and to accommodate increased cabling as needs dictate.

The environmental controls include natural ventilation driven by the convection generated in the glazed street. Air is drawn from other parts of the building under the control of automatic louvres and the Building Energy Management System (BEMS).

Leith Academy was designed with both an expansion and a contraction strategy to ensure it would be a long-term asset to the city.

### **"New Leith Academy, Edinburgh, Scotland"**

*from Redefining the Place to Learn (OECD, 1995)*

The design of this "school of the future" features four key elements: (1) a modular system provides flexibility for change; (2) an internal "street" facilitates community access, ease of circulation and energy efficiency; (3) provision for the increasing use of information technology is included; and (4) references to vernacular architecture humanize the scale of the building.

The designers sought to develop a school that would meet current educational requirements and also be adaptable in the future. [...] The building has been primarily designed as a place for learning for students and adults, though it also allows for concurrent use as a community and recreation centre. In responding to current trends in education and to the demands placed on a school by a variety of different users, the designers took into consideration increasing demand for adult education, particularly to train and retain workers for an increasingly technological society.

The designers' approach was to create a welcoming and flexible building that could be adapted to a variety of learning situations without major renovations. In addition, the strategy was designed to address problems of growth or decline. If, for example, the size of the student population declines, some areas of the building can be adapted for office or commercial use....



Leith Academy



### A decade later

Over a decade later, the school's facilities and image remain exceptional. The systems of the building generally work very well. The teaching areas, circulation and way-finding systems are seen as "contributing to the much commented on calm behaviour of the pupils (and perhaps staff as well!)". The street café and restaurant have been just as successful. Places at the school are in demand and the pupil roll has risen to the extent that two further teaching wings will soon be added, in accordance with the original modular expansion strategy, to allow capacity to expand from 950 to 1 100 places. The extensions respond to increased demand for music, drama, science and general teaching space. A new sports club was added in 1998, attached to the glazed street's pre-planned expansion zone. Minor adjustments to the internal layout are now proposed and are readily planned within the modular suite of spaces and the wide-span construction. The loose-fit furnishing and services strategy has also proven successful in responding to day-to-day changes in requirements and to different teaching formats. Most science teachers have made use of the flexible service booms and relocatable laboratory benches to vary the room layout for different purposes.

There are no signs of vandalism and there is a sense of pride in the building, indicating it is well liked, a feature which is key to ensuring a building remains in good condition.

A typical detailed item of feedback relates to the importance of ensuring that the automatic louvres and computerised BEMS system are understood by the building users and maintained to ensure that environmental controls continue to operate efficiently, as designed.

The generally cheerful disposition of pupils, who show respect for the social spaces, and the thriving community education programme are testament to the success in creating a building which is welcoming and non-institutional for pupils and for adult use.

### Subsequent projects

All of the strategic design principles applied in Leith Academy were taken forward and refined in the design of St. Margaret's Academy, Livingston, completed three years later, in 1994. Like Leith, the design of St. Margaret's Academy is a synthesis of local, national and international experiences, events and trends. At its heart, rather than a street, is a large plant-filled atrium. The school has many intriguing and unusual features including large ceramic floor panels prepared as a collaborative venture between local primary school pupils working with an artist and a potter. Energy efficiency was developed in terms of the building form, solar control and the heating system. Again the value of the expansion strategy was proven early on in that it allowed a large extension to the community sports facilities and pool to be incorporated relatively late in the design and construction process. The sense of pride in the building is clearly evident here also.



Currie High School

The "planning for change" principles and image transformation have been applied to the complete strip-out and refurbishment of large schools, such as the Currie High School in Edinburgh, designed in the 1960s for 900 pupils. Its refurbished facilities are directly comparable to those of a new school, although provided at a fraction of the cost. The high school required complete internal re-planning of the existing buildings. It received a variety of new specialist spaces to address new curriculum requirements and resource-based learning, for example seminar rooms and staff bases, the latter forming core spaces to provide an identity and social focus for each subject department.



St. Thomas of Aquin's High School

St. Thomas of Aquin's High School is the latest school designed by the City of Edinburgh, in a unique partnership contract novated to a contractor. Influences were again drawn from PEB's work as well as from office business parks, innovative schools in Columbus, Indiana (USA) and buildings which provide successful social or commons spaces at their heart.

St. Thomas of Aquin's High School is being widely quoted as setting a new benchmark of quality in educational design and in November 2003 was awarded the national "Civic Building of the Year Award". This was recognition not only of the strategic design principles the school incorporates but also the project's sensitive response to a historic city-centre site which demanded an exceptionally high standard of materials and finishes.

A new modular grid was developed to allow teaching spaces to increase from 52 m<sup>2</sup> for academic subjects and 65 m<sup>2</sup> for practical subjects (such as science and crafts, requiring more specialised equipment), to a new standard of 65 m<sup>2</sup> and 75 m<sup>2</sup> respectively. This facilitates even greater flexibility for IT workstations in every class and more extensive provision for disabled pupils in mainstream education, as well as contributing a further sense of comfort and spaciousness. The space for these major enhancements was achieved by refining the analysis of space usage, thus avoiding a proportionate increase in cost.

St. Thomas of Aquin's High School was built through an innovative partnership that proved a highly successful alternative to private-public partnerships. The school was taken to full "scheme design" stage by the city's own architects before they were novated to work directly for the contractor under a design/manage/construct partnership contract. This allowed the city architects' established educational design expertise to be fully harnessed. The scheme design formed a prescriptive brief for the partnership contractor to develop and to apply his commercial skills to. This resulted in the project's success: an award-winning building, constructed within a standard budget and to programme.

Whilst the strategic thinking behind all of these schools has a common root, it has been possible to develop and refine the approach, always in the context of drawing out the particular character of each school so that each is a unique and special place to inspire learning.

The brief for a large, new public-private partnership investment, including six new secondary schools and three major refurbishments in Edinburgh, is informed by designs first worked through in parallel with PEB.

From the design of Leith Academy – with its flexible, welcoming and non-institutional environment – onwards, the effectiveness and value of an international forum in which design principles can be refined to achieve quality, long-lasting educational establishments is clear.

Article by:  
Don MacKenzie  
Senior Architect, Building Design Services  
The City of Edinburgh Council  
Scotland, United Kingdom  
Tel.: 44 131 529 5852  
E-mail: don.mackenzie@edinburgh.gov.uk