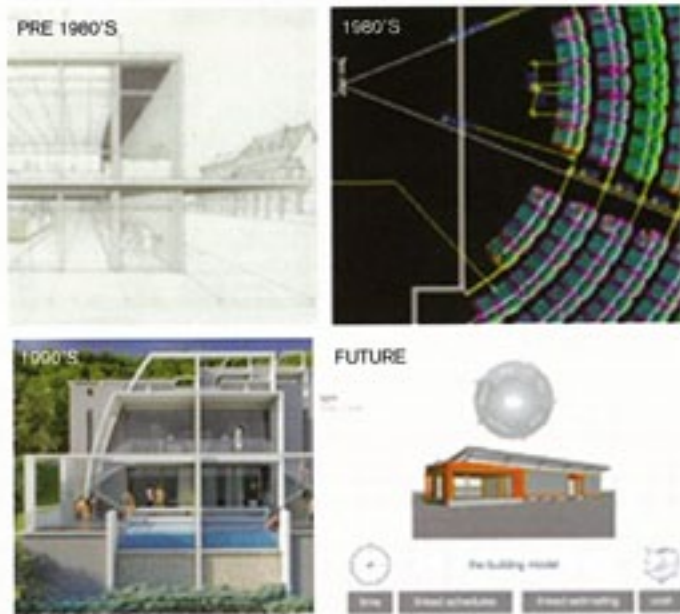


# FUTURE DESIGN

the importance of ICTs to architecture

By Gary Turton



Images courtesy ACLA works ltd.

In Trinidad and Tobago, local architects have been challenged not only by the global economic recession, but also unfavourable government policies regarding the procurement of public buildings and more recently by general elections. As the construction sector looks hopefully to the new administration for economic stimulus as well as more positive policies that promote a healthy local construction sector, architects must also be proactive in upgrading their skills and tools to increase their competitiveness.

The design of buildings goes beyond what they look like, or simply providing what an owner wants. It is about a complex series of decisions that have to be made in order to create a balance between multiple functional and aesthetic requirements. Through design, architects meet the requirements of owners, building users, site factors, financial constraints, building statutory factors, climatic, environmental, heritage and other considerations. Through their unique capability and training to synthesise various objectives, architects are critical for improvements to the built environment and are best qualified to design buildings.

Architecture is primarily concerned with protecting and enhancing the lives of a building's occupants. The role of the architect has not changed much throughout time but as construction techniques change, and information and communication technology continue to reshape the world, so too have the tools of the architect evolved.

Significant capital is spent on buildings in the Caribbean creating a considerable market for professional services. While there is considerable local expertise within the region in construction-related professional services, local consultants continue to compete with international consultants in the local/regional market, often at a disadvantage. This includes the ability to develop specialized knowledge in certain building types. To help level the playing field, apart from lobbying government to allow local professionals to lead projects because of our own specialized knowledge of building in the Caribbean and subcontract foreign specialists, local architects must also stay abreast of technological trends and building delivery processes to remain competitive.

Architects used to draw by hand with t-squares, parallel rules and triangles until the late 80's when computer-aided design (CAD) became the new standard for making 2D drawings. Computer programs have since evolved to allow 3D virtual modelling and the creation of more realistic perspective renderings and eventually animated movies by the early 90's. The most current innovation in the field of architecture of the last decade is not entirely in software alone but an approach that goes further into construction of buildings via a 3D computer model. Its called Building Information Modelling (BIM).

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# INFUSING ICT INTO ARCHITECTURE

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Using BIM, architects, engineers and quantity surveyors collaborate to create a computer model of a building in 3D with information integrated into the various elements of the model, making it a virtual building. The virtual building then allows for calculating material quantities, scheduling construction and most importantly for checking and reducing conflicts on site ahead of time, therefore streamlining the construction process and potentially saving owners between 10-20% of time and cost. BIM vastly improves the delivery of buildings for clients and even improves facilities management over the life of the building for owners. BIM also allows contractors to be involved and benefit from the process particularly on design-build projects and is almost a prerequisite skill for another trend, Integrated Project Delivery (IPD).

Because of increased complexity of new buildings, accelerated delivery requirements, and a challenging economic environment, it is obvious that any trend that can minimize mistakes and save clients money is a good service for Architects and consultants to master and offer to owners. In the same way that 2D Computer Aided Design (CAD) transformed the tools of the Architect in the 80's, BIM is the trend that is currently revolutionizing the industry. Although new commissions are scarce in the current global economic environment, there is an opportunity for local firms to retool themselves to become more competitive and actually increase architects' potential to be master builders.

With the availability of the internet in the 90's, and further advances in ICT such as increases in bandwidth, wireless access, computer speed, memory and storage capacity and a wide variety of website resources, the evolution of services, tools and resources for the architect continues to progress. Further ICT innovation will continue to influence the way Architecture is produced and information is communicated.

In light of the trade liberalization, particularly in the global trade of professional services, architects not only have a lot of work to do to lobby government for the right policy and regulatory environment for the profession to sustain itself and to expand, local architects also need to verse themselves in the latest ICT developments to increase their global competitiveness and by default Trinidad and Tobago's GDP, particularly as the export of services is one of the fastest growing sectors globally.

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Is the Immediate Past President of the Trinidad and Tobago Institute of Architects [TTIA], former director of the Trinidad and Tobago Coalition of Services Industries [TTCSI] and Director of Trinidad-based architecture and interiors firm, acla:works, who have been leaders in the use of BIM, have several published international articles on the subject, and were the recipient the South Trinidad Chamber of Industry and Commerce's [STCIC] Tyrone Samlalsingh Pinnacle Award for Technology and E Commerce in 2007.

