

COMPANY

P&T Architects & Engineers Limited

PROJECT

Malvern College Hong Kong

LOCATION

Tai Po, New Territories, Hong Kong

TYPE

Primary and Secondary School

SCHEDULED TIME OF COMPLETION

2018

One company, one Revit model, three disciplines.



BIM PARTNERS INVOLVED

P&T (M & E) Limited**P&T (Structure) Limited**

About P&T Architects & Engineers Limited

P&T Group, formerly known as Palmer and Turner Hong Kong, is the oldest and one of the largest architectural and multidisciplinary design practices in South East Asia. Headquartered in Hong Kong, it has over 1800 staff, and 16 branch offices throughout South East Asia and the Middle East. P&T Group offers a full range of architectural, structural and mechanical engineering as well as planning and project management services. The group's growth is a reflection of the increasing number of large scale projects demanding creativity and multidisciplinary expertise in order to deliver optimised design solutions. Among its core principles, the company has always included adoption of the most advanced technologies available for the building industry as well as for the design and project management process.

The Project

Malvern College Hong Kong is a modern multifunctional campus encompassing top class facilities for primary and secondary schools. Located adjacent to the Hong Kong Science Park, the school aims to be a leading international educational institution in HK, inheriting the fine ethos of Malvern College - the renowned British school with more than 150 years of tradition. The school will open its doors in September 2018, and ultimately provide 960 places for both primary and secondary students.

The Challenges

The ambition of this project was to conduct the design from concept to construction and produce all the deliverables exclusively with the BIM process, and do so for the disciplines of Architecture, Structure and MEP. The most challenging stage turned out to be the Hong Kong statutory submission, due to its specific and strict requirements for the format, graphics and scope of calculations of various project parameters. The format and contents of the submission, which was to be generated in full from the Revit model, were supposed to be identical to the one prepared with traditional CAD methods.

The Solution

Proper configuration and management of a Revit model, so that it contains all the information needed by Hong Kong practice and regulations and can present it in the prescribed manner, requires a lot of upfront customisation work. This can only be successful with deep knowledge of Revit functionalities and application of many non-standard or complex solutions for view templates, view filters, schedules, families, etc. These solutions and workflows comprise a standardised system within Revit, and creating this requires extra time for the first project done this way, but can then be easily used for any subsequent job.

The Benefits

The most important and obvious benefit of using BIM in the design process was perfect coordination between various types of drawings and calculations generated from the model (plans, sections, elevations, schedules) and early detection of conflicts between various disciplines (e.g. structure and MEP). By allowing continuous access to one central model for all three main disciplines (one of the preconditions of BIM Level 3 methodology) many problems could be detected and rectified during the design stage, resulting in earlier delivery of an error-free, coordinated project.

Better with BIM

A customised and tested workflow enabling concept-to-construction management of Hong Kong projects is a crucial asset, which could speed up the adoption of BIM in the territory if it became a part of the BIM standard recognised by the professional and government organisations and freely available for every BIM user.

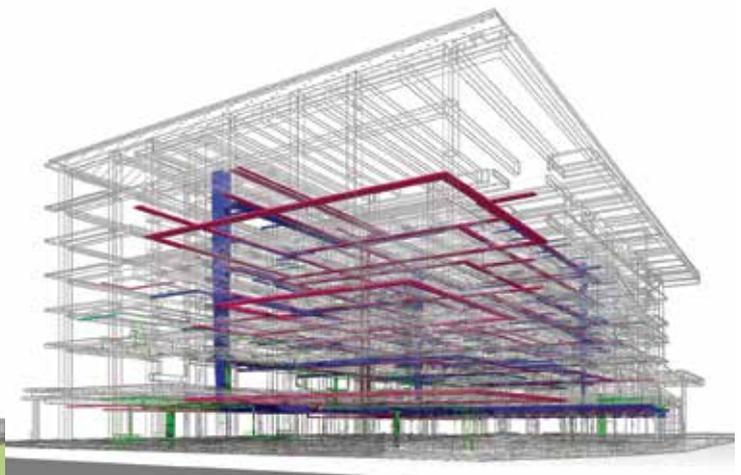
On the other hand, one Revit model with shared access for architects, structural and MEP engineers proves to be a feasible and beneficial solution for large multidisciplinary organisations, which are not bound with legal issues of intellectual property and day-to-day ownership of the BIM model contents during the design process.



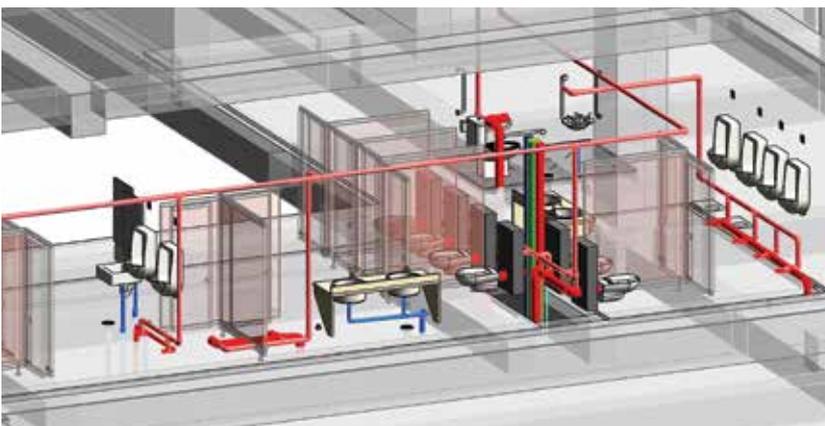
Malvern College. Western elevation
Image courtesy of P&T Architects & Engineers Limited



Malvern College. Translucent model revealing structure
Image courtesy of P&T Architects & Engineers Limited



Malvern College. Translucent model revealing MEP installations
Image courtesy of P&T Architects & Engineers Limited



Malvern College. Male toilette with piping highlighted in colors
Image courtesy of P&T Architects & Engineers Limited



Malvern College. 3D section of the model with highlighted structure
Image courtesy of P&T Architects & Engineers Limited