

A wireframe cityscape of Hong Kong, featuring prominent skyscrapers like the Bank of China Tower and the Oriental Pearl Tower. A colorful ribbon graphic, transitioning from blue to red to yellow, curves across the scene. The background is a solid blue color.

THE POWER OF

**BIM**

香港

Hong Kong

*Vision to Reality*

2008

Autodesk

Imagine you could see a building before it's built.

Imagine your design teams could use software  
based on the way they think.

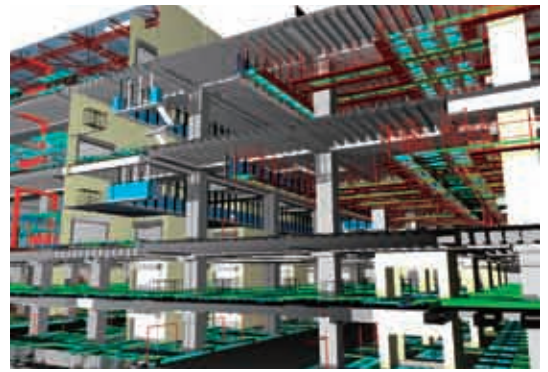
Imagine that by using the world's  
most advanced design process, you could slash  
variation costs to a minimum.

Imagine **no more**

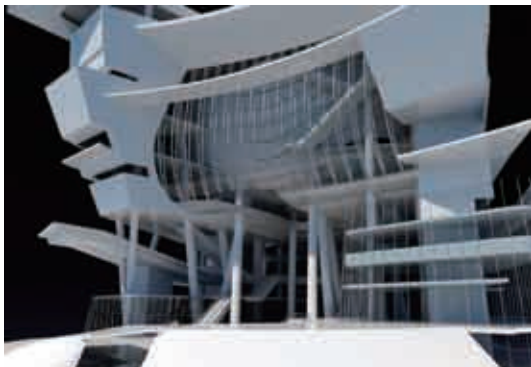
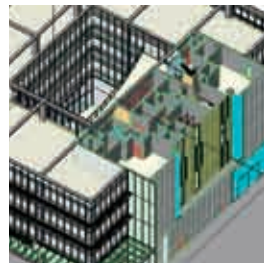
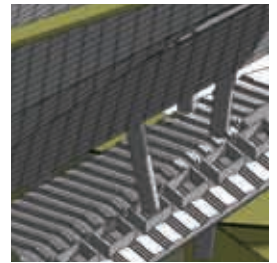
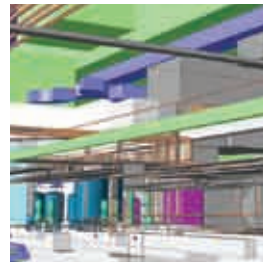
**The era of BIM –  
Building Information Modeling  
– has arrived.**



Artist impression



Artist's impression - City of Dreams



## 3 Preface

## 4 The Power of BIM

## 5 The Outstanding Companies

- Hong Kong Science and Technology Parks Corporation
- IntelliBuild
- Melco Crown Entertainment Ltd
- MTR Corporation Ltd
- WSP Hong Kong Ltd

## 37 About AIAB

- Interview with AIAB Chairman
- Sharing from AIAB Members
- AIAB Activities

## 49 Autodesk News

### Acknowledgement

Sincere thanks to the five winning companies, Hong Kong Science and Technology Parks Corporation, IntelliBuild, Melco Crown Entertainment Ltd, MTR Corporation Ltd and WSP Hong Kong Ltd, in providing such valuable information and pictures of their projects. We are extremely grateful of the contribution of the AIAB committee and members, Mr YY Yip, Mr David Yau, Mr Dickson Mak, Mr Kenny Tse, Ir Stewart Wan, and Mr C.C. Cho, who are profiled in this booklet.

### Disclaimer

The Power of BIM — Vision to Reality Copyright 2008 Autodesk. All rights reserved. Printed and bound in Hong Kong. No part of this book may be used or reproduced in any form by any means whatsoever without prior written permission of the publisher.





## PREFACE

It is my great pleasure to introduce the Hong Kong Revit Building Information Modeling (BIM) Experience Award 2008: **“The Power of BIM – Vision to Reality”**.

Hong Kong is renowned for its skyscrapers, which serve as headquarters to many multinational firms. This includes a wide array of offices where many Hongkongers work, as well as malls where businessmen and women visit in their leisure time.

By one measure, Hong Kong has more buildings over 150 metres tall than any other city in the world, including iconic high rises like the International Finance Centre (IFC), Bank of China Tower, The Center, HSBC Headquarters, and Cheung Kong Centre. In recent years, Macau's skyline has also undergone an astonishing transformation, with the boom in casinos and hotels, and including the distinctive Macau Tower.

Thus, Hong Kong and Macau are excellent platforms for BIM – Building Information Modeling, which enables designers to realize their grandest concepts and visions in spectacular reality.

BIM is an innovative method for seamlessly bridging communications between the architecture, engineering and construction industries. With BIM, architects and engineers efficiently

generate and exchange information, create digital, four-dimensional representations of all stages of the building process, and simulate real-world performance – streamlining workflow, increasing productivity and improving quality.

I would like to congratulate the five winning companies – Hong Kong Science & Technology Parks Corporation, IntelliBuild, Melco Crown Entertainment Ltd, MTR Corporation Ltd and WSP Hong Kong Ltd – that are receiving this year's “The Power of BIM – Vision to Reality” award. They are setting new standards in the building industry not just in Hong Kong and Macau but also the world.

This booklet showcases how these winning companies use BIM to build world-class buildings, facilitate the construction process and make art out of concrete and steel. When reading this book, you will see what BIM has done for others, and experience what it could possibly do for you!

**Patrick Williams**  
Senior Vice President, Apac



# The Power of BIM

This is the second year of the Hong Kong Revit BIM Experience Award, and I am highly encouraged to see there is such swift progress in adoption of BIM within Hong Kong. There is a wonderful range of projects that are adopting an in-depth approach to applying BIM, covering wide ranging aspects of construction projects.

Hong Kong is one of the world's most advanced countries in adopting building technologies, and has played a crucial role in setting standards for the industry worldwide. Through deploying cutting-edge technologies, Hong Kong is well-known for its efficiency in completing world class building projects.

I am also very impressed to see Hong Kong BIM practitioners are involved in many international projects, and BIM has become the basic tool of choice for them to collaborate, using BIM for complex designs, collaboration and coordination amongst multiple disciplines, and producing sustainable designs. I believe that Hong Kong will continue its leadership role in BIM development in the region, and I greatly look forward to seeing more successful applications of BIM.

On behalf of the Autodesk management team, I congratulate the five award winners – HK Science & Technology Parks Corporation, InteliBuild, Melco Crown Entertainment, MTR Corporation Ltd and WSP Hong Kong Ltd – for their outstanding usage of BIM in their building processes.

The following section provides an in-depth interview for the five outstanding projects, from which you can see how BIM can help to facilitate the design and construction processes, delivering marked improvements in efficiency, and even making the otherwise impossible, possible.

Again, congratulations to the five outstanding companies.

**Margery Yeung**  
Regional Director,  
Hong Kong & Taiwan

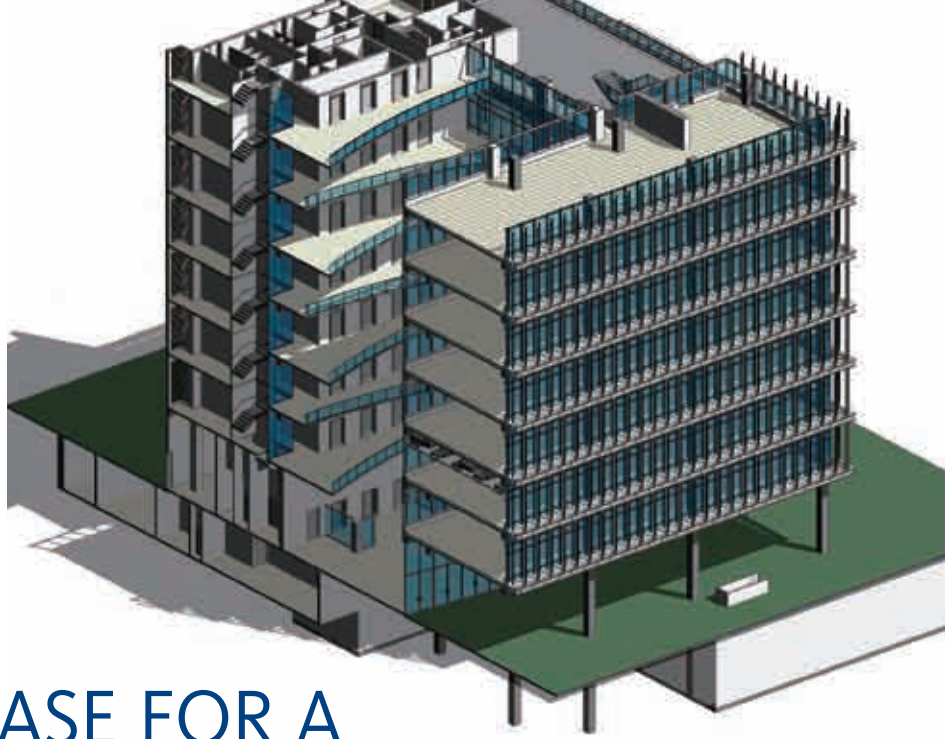


Hong Kong 香港科技園  
Science & Technology Parks

“ BIM can help people visualise  
what we want to build – before  
we build it. ”

**Ir. Stewart Wan**, Project Manager,  
*Hong Kong Science and Technology Parks Corporation*

Artist impression



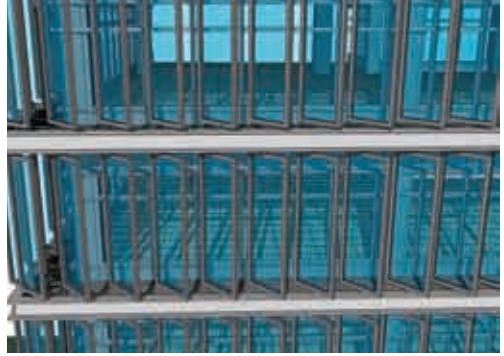
# SHOWCASE FOR A SUSTAINABLE FUTURE

**Project:** Building 20  
**Location:** Hong Kong Science Park,  
New Territories, Hong Kong  
**Type:** R&D office building  
**Scheduled for completion:** 2010

Even before piling work began on the newest building in Hong Kong Science Park, Ir. Stewart Wan, Project Manager of Hong Kong Science and Technology Parks Corporation, felt he had often been inside the building, and seen it during various stages of completion.

He and other members of the design team had explored the Revit 3D model – “Like a paper plane flying inside” – to witness construction phases from only beams in place, to lighting added, through addition of further structures, as well as fire, water and other services, until the façade was in place.

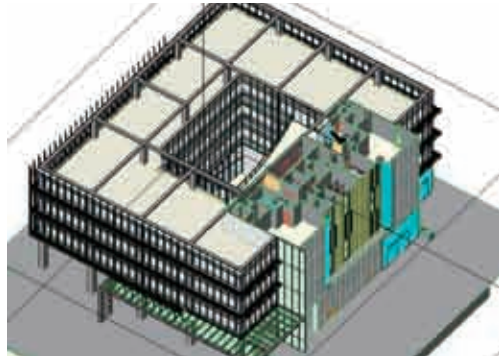




## Ambitious, Futuristic Objectives

The new building – referred to as “Building 20” during design stages – is to enhance Hong Kong Science Park's role as a hub for innovation and technology development. Although energy saving technology had already been adopted in the park, Building 20 is designed to embrace green and sustainable technologies – and demonstrate these can be viable in commercial buildings.

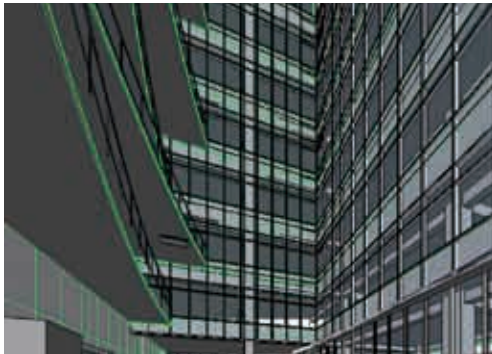
As well as having a unique identity whilst harmonising with the other futuristic buildings in the Science Park, Building 20 was from the outset required to be operationally efficient, sustainable, user friendly, environment friendly, and cost efficient. Plus, there was a tight deadline for construction.

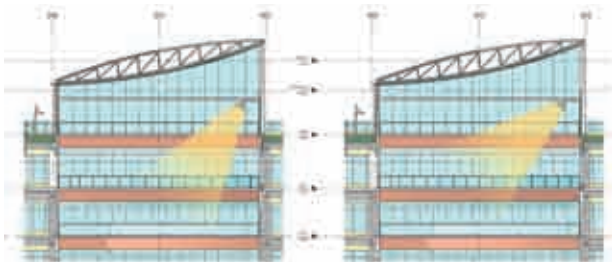


## Visualising Building 20 before it's built

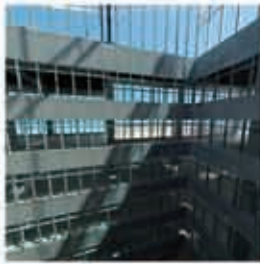
Though the Hong Kong Science and Technology Parks Corporation was already using Autodesk's Buzzsaw project management solution, to enhance communications between members of building design teams, Building 20 is its first project using BIM.

Stewart Wan had learned of BIM in 2006, and was impressed, realising, “It can help people visualise what we want to build – before we build it. It's very useful for minimising unavailing work on site, and design team members can coordinate among each other.” By reducing abortive work – so clashes are found before structures are built – BIM can cut relevant costs in construction and coordination.

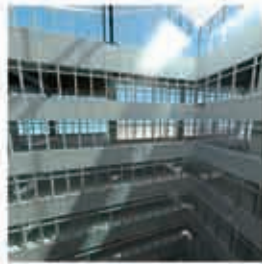




VARYING REFLECTOR ANGLE DURING THE DAY



WITHOUT REFLECTOR



WITH REFLECTOR

## Driving architects and consultants to use new technology

The Building 20 project architects had hitherto used computer modelling only rather sparingly. “We’re driving them to use new technology,” says Ir. Wan. “The architects find Revit interesting, and quite user friendly.” Though the building services consultant was already using Revit, the corporation likewise prompted the engineering consultant to adopt BIM.

“BIM is an integrated solution,” says Ir. Wan. “For example, some of the building performance analysis like lighting calculations, sun paths and wind flow, we can do them all in one go.”

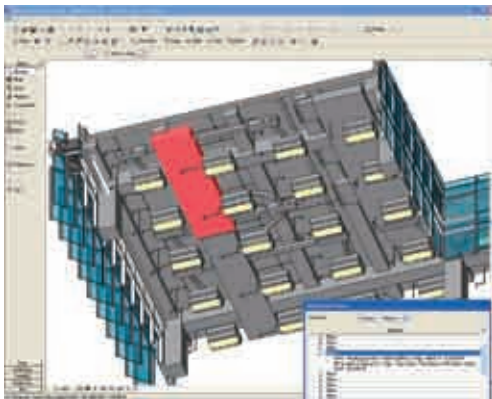
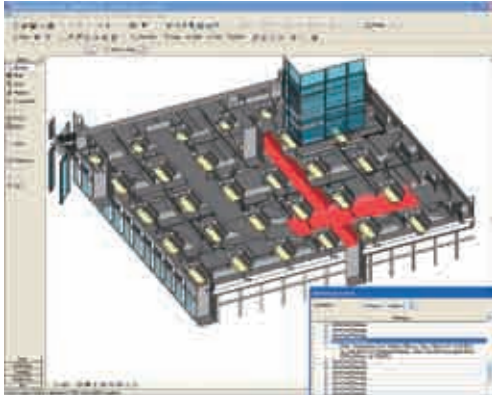
## Assessing sustainable features

BIM has proven a boon for assessing Building 20’s sustainable features, such as the use of sunlight for extensively illuminating the interior. Using BIM, the design team have tracked sun paths through the building, from sunrise to sunset.

Every week throughout the design process, Ir. Wan and other design team members sat down to watch BIM simulations of Building 20, to witness progress. “We have been inside many times,” says Ir. Wan.

## Reducing clashes

After working on environmental issues, such as sun paths, Ir. Wan and his team progressed to assessing clashes, particularly as MEP was added to the structure. Through doing so, they have significantly reduced potential mismatches, so there will be far less need to make changes when construction work is in progress.



### Accelerated design process

“We need to complete construction within two years – we need the sustainable features integrated together, and we need to know it’s buildable,” says Ir. Wan. “If we had adopted a conventional approach, it would take more time to know if construction will be successful.”

### Expanding adoption of BIM

If BIM proves successful during construction of Building 20 – even piling began, Ir. Wan anticipated BIM will surpass his initial expectations – it will also be deployed for expansion of the Science Park.

As well as being sustainable, Building 20 will showcase initiatives that are already in place elsewhere in the Science Park, such as adoption of building integrated photovoltaic systems, and solar water heating for a swimming pool. There will be exhibition booths for the public, highlighting integrated green features in buildings, and showing that whilst difficult, it is possible to reduce carbon footprints of commercial buildings.



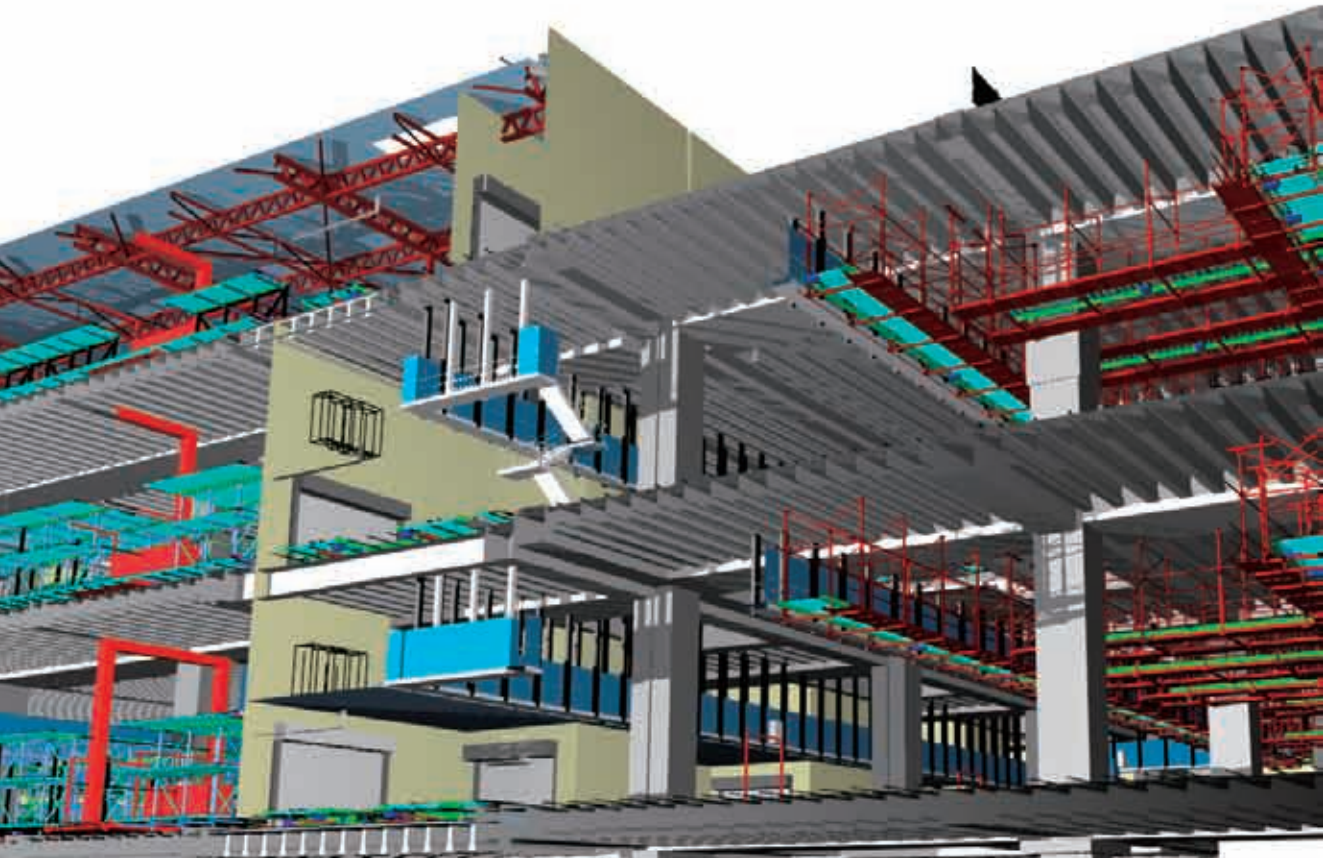


## ABOUT HONG KONG SCIENCE AND TECHNOLOGY PARKS CORPORATION



Hong Kong Science and Technology Parks Corporation ("HKSTPC") is a statutory body set up by the Government of the Hong Kong SAR. HKSTPC provides innovative and technology driven infrastructure and support facilities which include market focused clustered laboratory services enabling Hong Kong industries and services to be more competitive and a full-service incubation programme for technology and design start-ups; and fosters partnerships and collaboration between industry and universities/applied research institutes through consulting, training and research programmes. HKSTPC offers advanced facilities and support services for high technology companies that include an IC Design Centre, an IC Development Support Centre, a Materials Analysis Laboratory, a Wireless Communications Test Laboratory and an Intellectual Property Servicing Centre.





**IntelliBuild**  
BIM + 3D Consultants

“ With BIM, you create a very powerful construction tool – it saves time and money during building works. ”

Ir. Ronan Collins, Managing Director,  
*IntelliBuild*



# THE MOST SOPHISTICATED BIM MODEL

**Project:** Cathay Pacific Cargo Terminal

**Location:** Hong Kong International Airport

**Type:** Air Cargo Terminal Building

**Scheduled for completion:** 2011

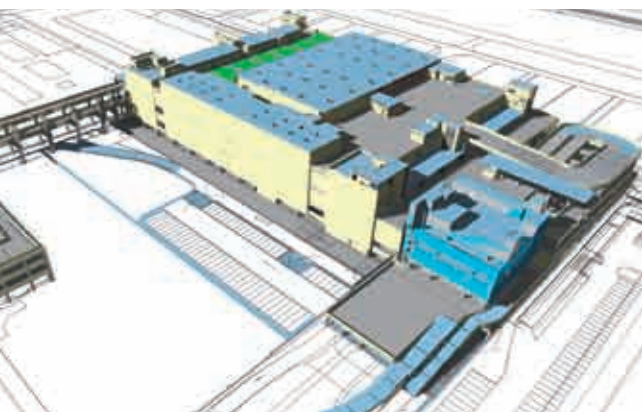
The world's largest air cargo terminal building is taking shape at the Cathay Pacific project office. Taking shape as a 4D Revit model, that is. "This is the first cargo terminal we are aware of that's being built using this technology," says Ir. Collins, Managing Director of InteliBuild. He shows the exterior of the terminal, sweeps the camera in to enter the building, and reveals an intricate assembly of material handling systems, piping, cargo bays, truck docks and stairwells.

"It's probably the most sophisticated 3D CAD model in the industry," says Ir. Collins.

## Huge, ambitious project

The Cathay Pacific Cargo Terminal is designed to maximize usage of the site area of approximately 10 hectares. With a floor area of 260,000 square metres – exceeding the floor area of Two International Finance Centre – it will be the largest cargo terminal in the world based on cargo through-put per square metre.

Equipped with a state-of-the-art Materials Handling System (MHS), the terminal will deliver shorter cargo delivery times, reduced cut-off times for export cargo, a shorter trans-shipment connection window and shorter truck queue times, to sustain the competitiveness of Hong Kong as a leading cargo hub.



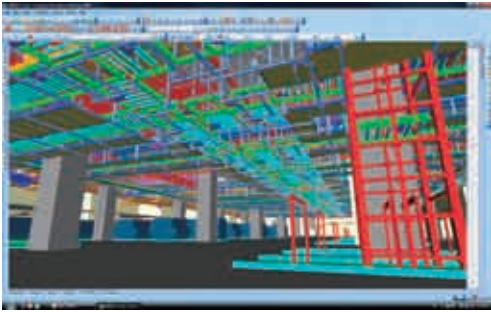
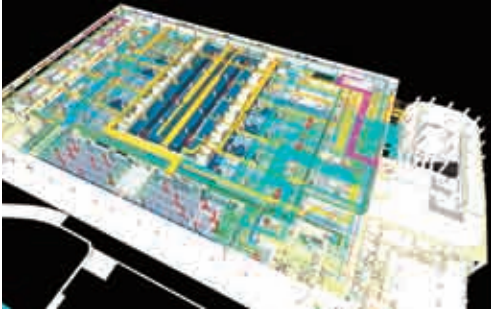
## Using full-blown BIM

Ir. Collins started IntelliBuild in 2003, after gaining experience in 3D modelling, initially as a structural engineer. The Cathay Pacific Air Cargo Terminal is the first project for which IntelliBuild is using what he terms “full-blown BIM”, involving multi-disciplinary coordination, with all of the MHS, structure, architecture and building services in the BIM model.

## Managing the entire building process

Ir. Collins has been closely involved in the evolution of 3D and 4D modelling for building construction, and has found that much depends on clients, who might only fully appreciate the benefits of BIM once they have used it.

“BIM involves a paradigm shift within the building industry,” says Ir. Collins. “You have to educate the architects and engineers, and clients must specify increasingly involved processes. With BIM, you can manage the entire building process.”



“There's an envelope of space within the terminal, such as headroom of 4.7 metres for trucks,” says Ir. Collins. “We model the spatial envelope, and make sure there are no pipes and ducts along the truck routes.” Cargo containers are different shapes and sizes, and there are maximum envelopes in different areas – sometimes two inches clearance might be required, sometimes four inches. Using the model, the design team can determine whether clearances in the design meet the client's operating requirements.

### **Teams seconded to client offices**

Managing even partial adoption of BIM is complex, and IntelliBuild employ small, specialised teams who are seconded to client offices, working on aspects such as protocols for naming the multitude of computer files each project generates. A five strong team works full time on the BIM for the cargo terminal, coordinating with the client, project managers, architects, structural engineers and building services engineers from Meinhardt.

### **Modelling the envelope of space**

“The cargo terminal design starts with the MHS equipment,” explains Ir. Collins. “You then wrap concrete structures around it, and add the architecture, including offices, and the MEP – the ducts, pipes and electrical systems.” All the design information is input to the BIM database, which can then be used to ensure the actual construction will be clash-free.

### **Identifying potential coordination problems**

The BIM process is used to identify a host of potential coordination issues, such as where a pipe will hit a beam, and explain them to the designers, who can revise the designs accordingly. “By employing BIM, construction will produce less waste, as there will be less demolishing and reworking,” says Ir. Collins. “We find errors with simple things, like equipment pits that are not the right size.” He zooms into the model, and shows a cargo bay where Navisworks had flagged a pit that might have looked fine on 2D drawings, but was actually too small.

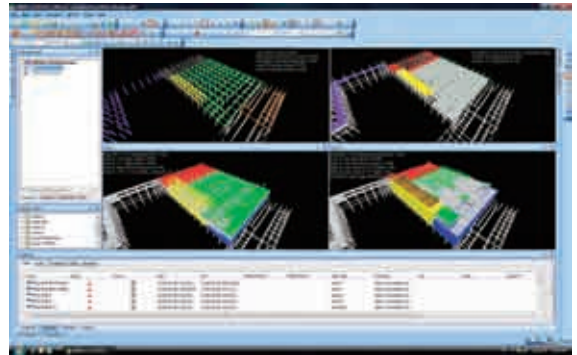
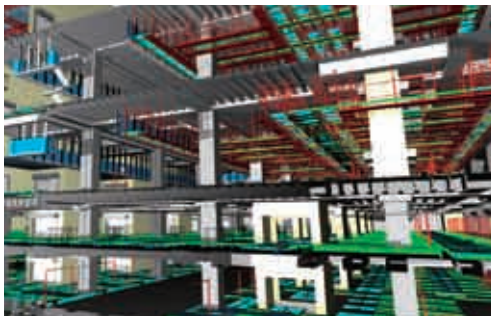


## A 3D model everybody can understand

“With 2D drawings, you require interpretation,” says Ir. Collins. “But with a 3D model, you can see where there’s a clash – everybody can understand it, and see problems much, much faster, and get on with the design.” By linking the 3D model to the planned construction programme, the IntelBuild team has produced a 4D model that will help throughout the entire construction process, including by assisting the specialised MHS contractors.

## Layers and layers of information

Ir. Collins says the cargo terminal model includes layers and layers of information. In just moments, he can choose to show the building’s basic geometry, add structure such as walls and ceilings, and progress to interior views complete with ducts and pipes. Plus, there’s a clash matrix generated by analytical software. The Revit and 3D CAD models are also being used for quantity take-offs.



## Over 3000 linked and coordinated drawings

Thanks to the database being so comprehensive, Revit has been used to produce 760 architectural drawings and 845 structural drawings. Additionally, Autodesk MEP has been used to produce more than 1600 building services drawings. All these drawings are linked and coordinated.

## Significant cost savings and construction on time

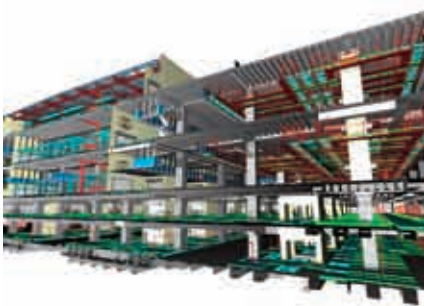
Though employing a specialised BIM team can be an extra cost for a project, Ir. Collins says the fees are insignificant compared to construction costs. Plus, BIM delivers significant benefits, including saving money and time. “Saving five percent of construction costs is feasible and well documented,” he says. Using BIM to streamline operations, construction projects are more readily completed within time, and within budget.



# IntelIBuild

BIM + 3D Consultants

## ABOUT INTELIBUILD



IntelIBuild are BIM + 3D Specialists. Experienced professional engineers and knowledgeable 3D CAD technicians collaborate to produce precise digital models for construction projects. The multi-disciplinary BIM models are used to identify design clashes and co-ordination issues. When combined with building programmes to create 4D models they can demonstrate site logistics and assist with construction planning.

IntelIBuild are responsible for planning and implementing BIM processes on fasttrak projects in collaboration with the client, consultants and contractors. Their BIM Managers are experienced in training Architects, Structural and Building Services Engineers on how to use the BIM process to improve design integration and drawing production.



Artist's impression – City of Dreams

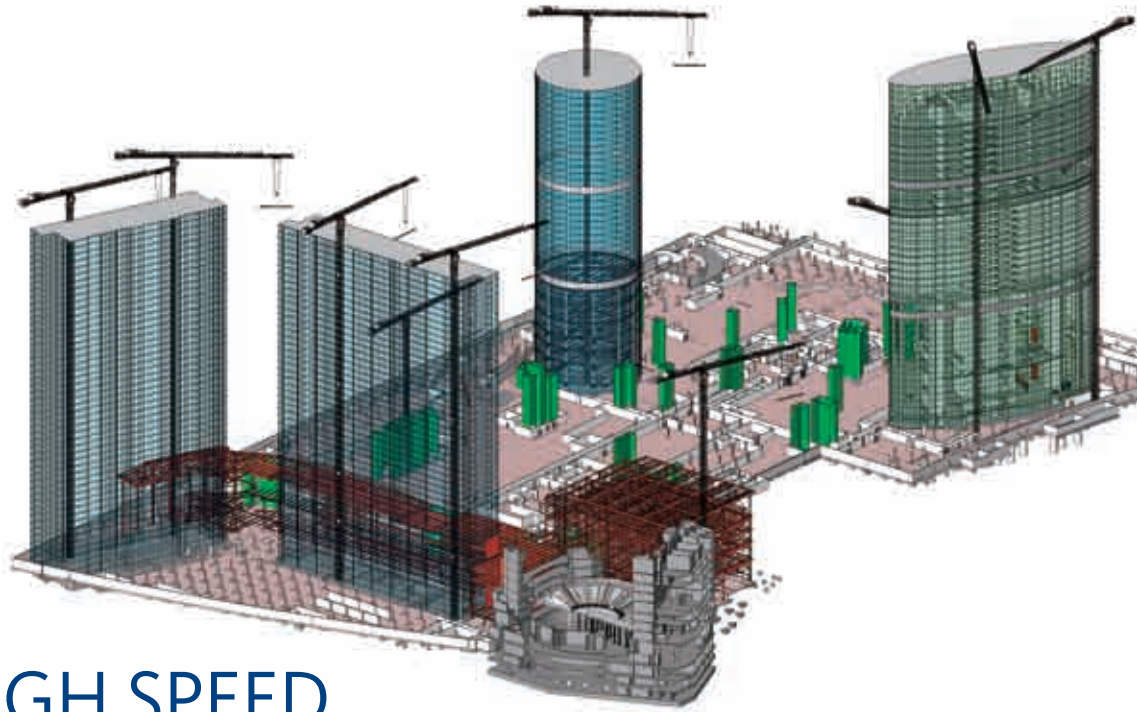


**Melco Crown Entertainment**  
新濠博亞娛樂

**“ Without a platform like BIM, it would be very difficult to coordinate everything – we needed to pull designs together, check whether there are any conflicts and resolve problems before construction commences.**

**The BIM model saved a lot of time in construction and in return, money is saved in overhead. ”**

**Ir. Samuel Lo, Senior Project Manager (Coordination),**  
*Melco Crown Entertainment*



# HIGH SPEED, COMPLEX CONSTRUCTION

**Project:** City of Dreams

**Location:** Cotai, Macau

**Type:** Entertainment Resort

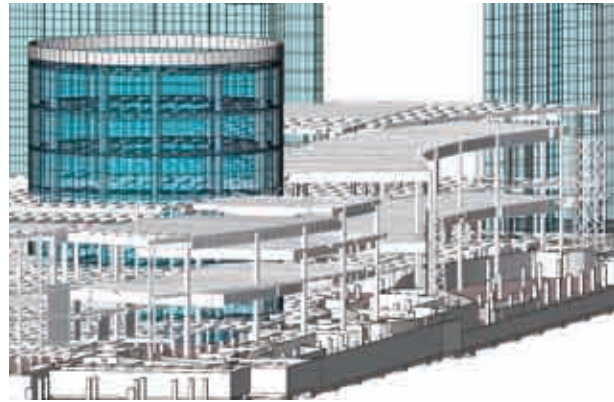
**Scheduled for completion:**

First phase in first half of 2009

Even among the new structures that have been built in Macau in recent years, City of Dreams that is taking shape in Cotai is decidedly ambitious. Blending a grand podium with four hotel towers and an apartment hotel building, it is being built at high speed, by an experienced project team including an array of contractors.

From the beginning, Autodesk Revit has been used for the project. "Without a platform like BIM, it would be very difficult to coordinate everything - we needed to pull designs together, check whether there are any conflicts and resolve problems before construction commences," says Senior Project Manager (Coordination) for Melco Crown Entertainment, Ir. Samuel Lo.





## An Integrated Resort

City of Dreams will be a must-see integrated urban entertainment resort that will combine electrifying entertainment, stylish nightclubs, an amazing array of accommodation options, numerous restaurants, world-class shopping as well as a 420,000 square-foot casino. The different styles of accommodation include Crown Towers Hotel, Hard Rock Hotel, the Grand Hyatt's twin towers and the apartment hotel complex, which, in aggregate, will deliver a diverse mix of approximately 2,200 guest rooms, suites and villas.

All the hotels would rise from – and would closely interconnect with – a multi-storey podium that would hold the casino, together with a dome-shaped iconic attraction, and containing a theatre centred on a large pool of water. Unusually for Macau, plans called for the podium to be built from steelwork – enabling cleaner and faster construction than reinforced concrete.

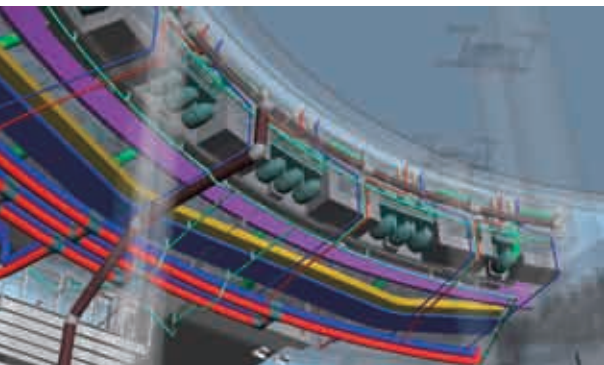
With specialist teams called in for project components such as the theatre, the casino, and each of the hotels, as well as for structural elements such as extensive steelwork, City of Dreams was to employ almost enough consultants and contractors for a small city: to date, over 250 contractors of different trades

have been involved in the project. Plus, while some consultants and architects worked in Macau, others were based in Hong Kong, Australia, Europe, and Las Vegas in the US.

Adding to the challenges for the project team: design work began in 2006, construction commenced in September that year, and already construction of the first phase is in the final phase, with attractions scheduled to open in the first half of 2009.

## BIM Essential for coordinating designs and finding problems

The Construction Management Contractor drove the use of BIM with City of Dreams – partly as they viewed it as essential for coordinating designs and finding problems, and so helping smooth construction work, to meet the fast track construction schedule. “The Construction Management Contractor had to be proactive,” Ir. Lo says. “To pull the project together was not easy – there was a need to put information into the model, so we could look, discuss problems, and respond to our designers.”



## Podium façade potentially tough without BIM

Much of the podium has a glass façade, which proved among the more challenging aspects of the project, requiring detail in the BIM model. “The façade is three dimensional, with a lot of structural elements,” says Ir. Lo. “It’s shaped like the bow of a ship – and without a good BIM system, it would not be easy to resolve all the conflicts.” With flat glass panels used to build the curving façade, there were stringent demands for tolerances with the steelwork. Conflicts were identified and resolved in the BIM model, greatly easing construction of the façade.

## Varying details into BIM model

“We chose to use Autodesk for BIM because of technical resources,” says K C Chan, Manager (CAD) of Melco Crown Entertainment. “We had the right CAD specialities. Without the right technical resources, no matter how good the software is, you can’t use it.”

Mr Chan also explains that BIM was required as the project components are too closely integrated to allow a modular approach. Plus, rather than inputting everything into the BIM model, the design and construction management teams decided to limit the information in the model, so there would be just enough for it to be really useful. The more complex part of the project was, the more details were input to the model.

## Off to a flying start

The BIM model was also important in helping get construction off to a flying start. “We wanted to order the structural steel for the podium (material delivery is normally a long lead time) and have it cut to size, and then start piling, and start construction,” says Ir. Lo. With the BIM model, sizes of steelwork were ordered after the BIM model was used to check there would be no conflicts, including with service pipes and ducts that had to pass through the steelwork.

When there were design changes, the model was used to see if there were any conflicts.

## No conflicts for cranes

“We also used the BIM model for temporary works and temporary construction planning,” says Ir. Lo. “We showed hotel blocks, together with locations of hoists and cranes. Using these, we could work out which area was not covered by a tower crane, and the best possible locations for hoists for loading and unloading goods. We also planned vehicle access to hoists, ensuring there was enough headroom, and turning circles were adequate.”

Using the model, the project team assessed whether there were potential conflicts with tower cranes, and made adjustments to plans in order to resolve potential problems. “So far, there have been no such incidents,” says Ir. Lo.

## Visualising construction

The BIM model helped with visualising progress with construction works. This was a boon with senior management staff instead of viewing all the diagrams and plans, typical of construction projects. Senior management teams also viewed the BIM model on portable PCs or via projectors. “They love to see this rather than all these drawings,” says Ir. Lo.

## Minimal requests for information

During construction, the BIM model has allowed site verification of drawings issued “for construction” in a timely manner, and production of “as constructed records” for the design team. Requests for information – from contractors finding potential errors or clarifications in designs – have been minimised.

## BIM model may produce as-built information

“We are now in the final stage of construction, and thinking to use the BIM model to produce all the as-built information,” says Ir. Lo. “It will be useful for future operators. For example, if there’s a need to change the use of a room – the operators can find information such as the headroom. For a large project like this, finding a drawing for a particular room is otherwise very hard. Also, the model can help with addition and alternation work, and with property management.”





**Melco Crown Entertainment**  
新濠博亞娛樂

## ABOUT MELCO CROWN ENTERTAINMENT LIMITED



Artist's impression – City of Dreams

Melco Crown Entertainment Limited (“**MPEL**”), listed on Nasdaq, is a developer, owner and, through its sub-concession holding company, an operator of casino gaming and entertainment casino resort facilities in Macau. Its first property, Crown Macau ([www.crown-macau.com](http://www.crown-macau.com)), opened in 2007. Other development projects include City of Dreams, an integrated urban casino resort located in Cotai, Macau. MPEL's business also includes the Mocha Clubs ([www.mochaclubs.com](http://www.mochaclubs.com)), which feature a total of approximately 1,100 gaming machines in seven locations and comprise the largest non-casino based operations of electronic gaming machines in Macau. MPEL has entered into an agreement, subject to certain conditions, to acquire a third development site on the Macau Peninsula. For more information about MPEL, please visit [www.melco-crown.com](http://www.melco-crown.com).

MPEL has strong support from both of its major shareholders, Melco International Development Limited (“**Melco**”) and Crown Limited (“**Crown**”). Melco is a listed company on the Hong Kong Stock Exchange and is substantially owned and led by Mr. Lawrence Ho, who is Co-Chairman and the CEO of MPEL. Crown is a top-50 company listed on the Australian Stock Exchange and led by Executive Chairman James Packer, who is also Co-Chairman and a Director of MPEL.



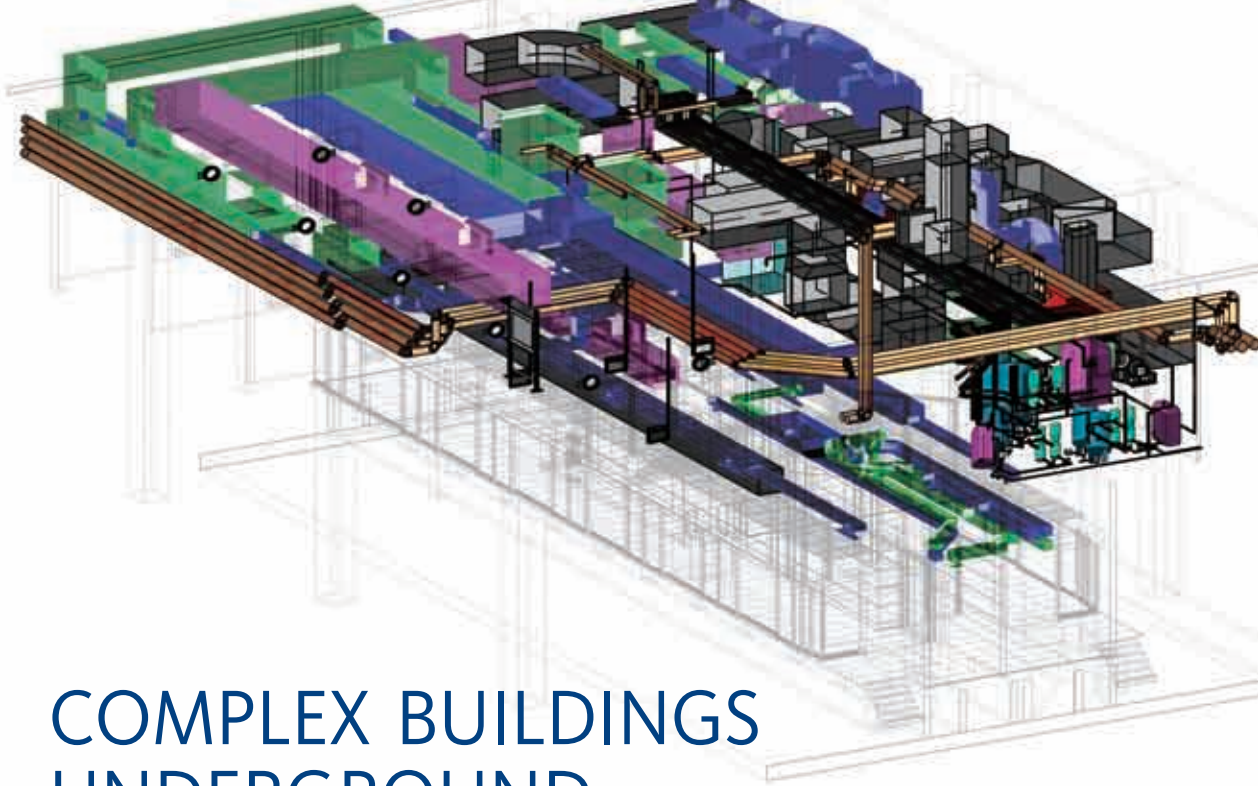


“ The tool enables us to communicate so people can discuss on the same model from different perspectives. We can easily input different design parameters into the [BIM] model and demonstrate the different effects. ”

Ir. William Lam, Building Engineering & Architectural Manager of OESD,  
MTRC

“ BIM is a very powerful tool for the transportation industry, including railways. It can enhance the value of existing facilities, and the constructability of new stations and buildings. ”

Mr. Philip Leung, Architect of OESD  
MTRC



# COMPLEX BUILDINGS UNDERGROUND

**Project:** A New Subway Station

**Location:** Hong Kong

**Type:** Subway Station

## 3.4 Million Passengers and 800 Thousand Drawings

MTRC is the largest transport operators in Hong Kong, carrying 3.4 million passengers per day, around 40 percent of the market share of transportation in Hong Kong.

“Hong Kong is so crowded that some people may think it's beyond their comfort level,” says Ir. William Lam, Building Engineering & Architectural Manager of OESD, MTRC. “This imposes a huge challenge on transport operators, to move people around such a crowded city.”



The MTRC has 80 stations, requiring that it maintains more than 800 thousand legacy drawings to maintain. Plus, the corporation is building new stations, and several existing stations are undergoing substantial renovation. MTRC required a system that could enhance the workflow of the asset life-cycle, from design and construction to building maintenance.

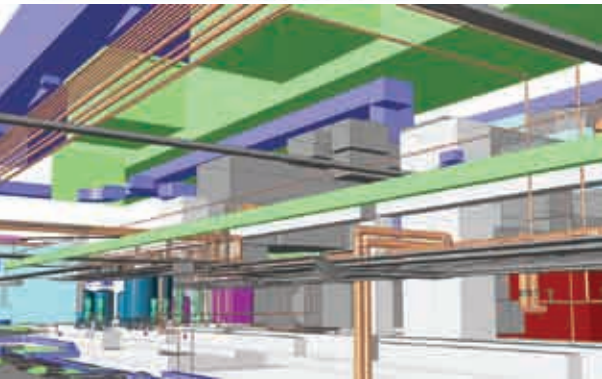
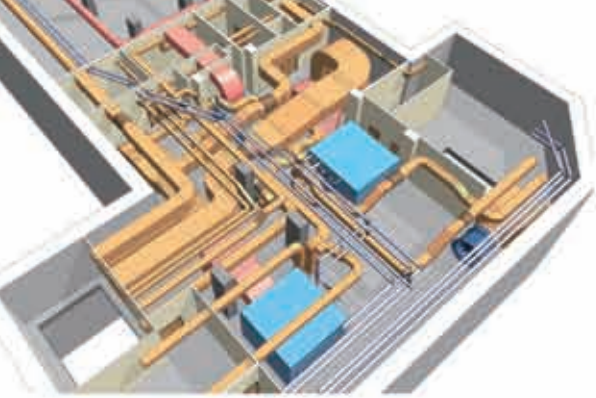
### Existing stations modelled with Revit Architecture

Several existing stations are being modelled with Revit Architecture. “Not only can Revit allow designers to produce engineering drawings and perform the visualisation work, but the software can also include many kinds of non-graphical information, in model items such as advertisement panels or vending machines,” said Philip Leung, Architect of OESD, MTRC. “This will definitely be beneficial to us in facilities management in the long run.”

### Communication with stakeholders

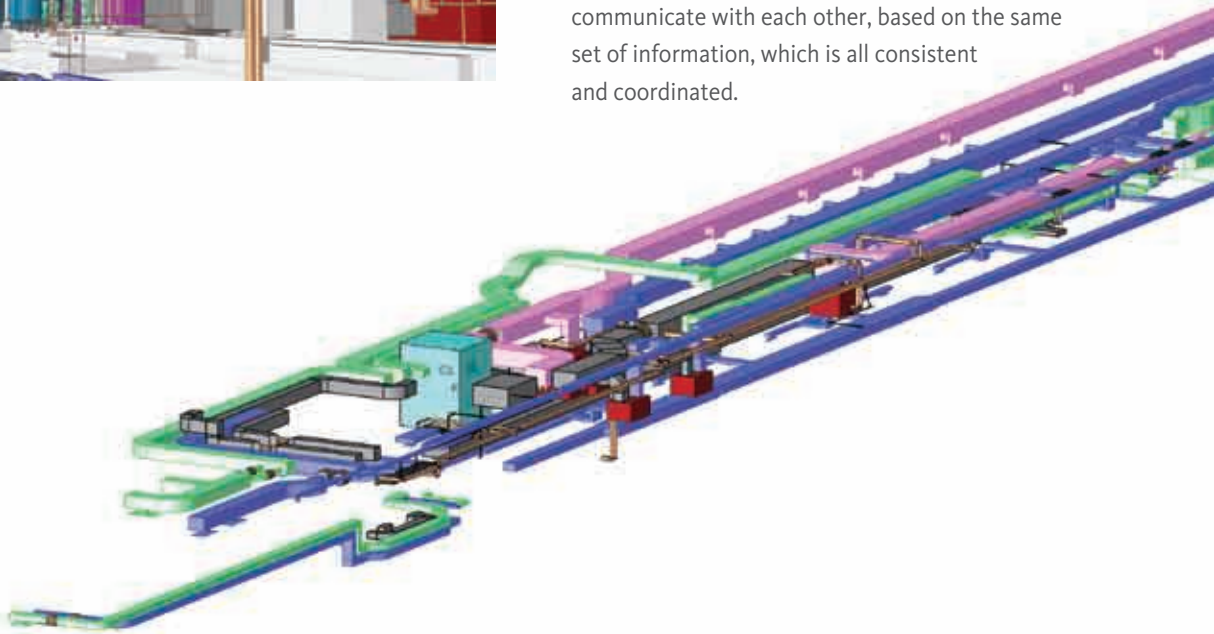
“The tool enables us to communicate so people can discuss on the same model from different perspectives. We can easily input different design parameters into the [BIM] model and demonstrate the different effects.” says Ir. Lam.

BIM is a much more efficient tool to produce day to day coordination works, and also to ensure information compatibility and to optimise building performance. It can handle information in much more effective way.

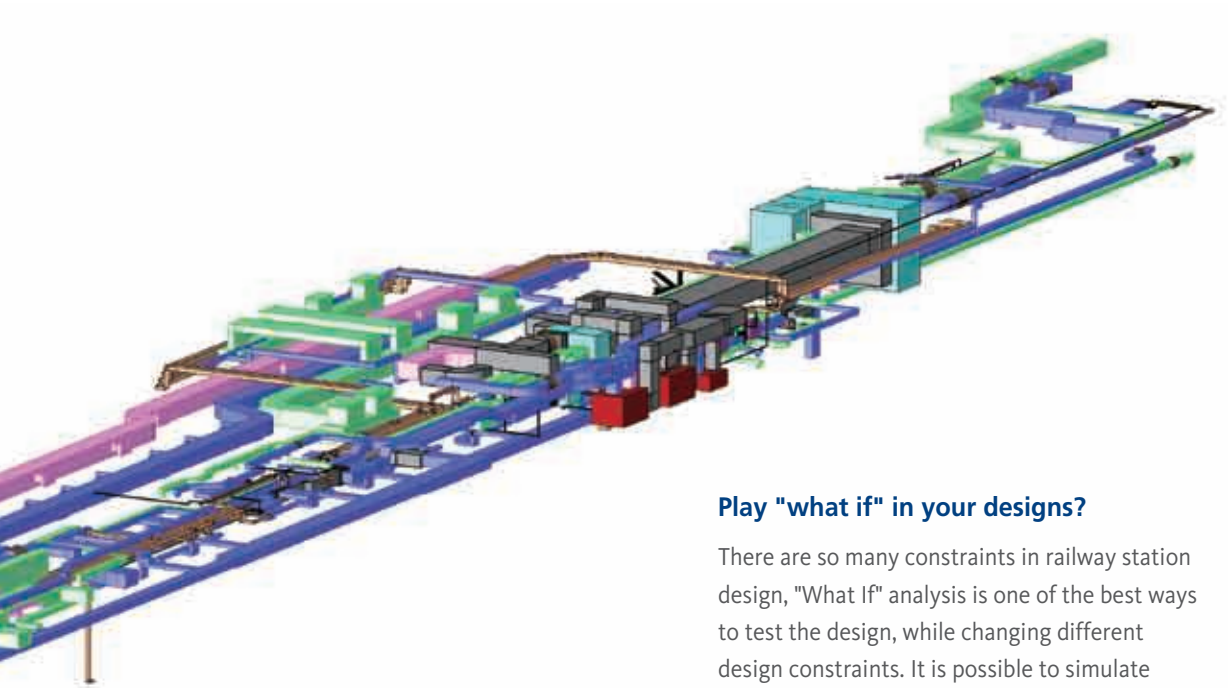


## A protocol for communication

BIM, building information modeling, is a tool enabling people to talk to each other. In addition to serving the purpose of 2D CAD, 3D rendering, it contains material quantities and specifications. All information is based on the interrelationships between different building components. Stakeholders from different disciplines can communicate with each other, based on the same set of information, which is all consistent and coordinated.







### A complete BIM subway station

The MTRC has built a complete BIM subway station, using Revit Architecture, Revit structure and Revit MEP. When the BIM was shown to the future station management team, they were actually “seeing” the future station for the first time.

“To our colleagues, this was the first time that they could visualise the station as a station before it was built,” said Mr. Leung. “They made comments, on whether there was enough signage and so forth. And, they were very happy about it. I can imagine it's very difficult for them to understand two-dimensional drawings.”

### Play "what if" in your designs?

There are so many constraints in railway station design, "What If" analysis is one of the best ways to test the design, while changing different design constraints. It is possible to simulate the result before the station is being built. “We can only demonstrate all this through the BIM model -- through the simulation,” says Mr. Leung. “Without it, we can't tell the authority or our senior management that we can do this, or we can't do that.”



## ABOUT MTR CORPORATION



Carrying an average of 3.4 million passengers every weekday, the MTR is regarded as one of the world's leading railways for safety, reliability, customer service and cost efficiency.

The MTR Corporation was established in 1975 as the Mass Transit Railway Corporation with a mission to construct and operate, under prudent commercial principles, an urban metro system to help meet Hong Kong's public transport requirements. The sole shareholder was the Hong Kong Government.

The Company was re-established as the MTR Corporation Limited in June 2000 after the Hong Kong Special Administrative Region Government sold 23% of its issued share capital to private investors in an Initial Public Offering. MTR Corporation shares were listed on the Stock Exchange of Hong Kong on 5 October 2000.

The Corporation marked another major milestone on 2 December 2007 when the operations of the other Government-owned rail operator, the Kowloon-Canton Railway Corporation, were merged into the MTR, heralding a new era in the Hong Kong railway development.

Other than bringing more efficient and competitively-priced services to local rail passengers, the merger brings new growth opportunities to the MTR Corporation's businesses in and outside of Hong Kong.

The merged rail network comprises nine railway lines serving Hong Kong Island, Kowloon and the New Territories. In addition, a Light Rail network serves the local communities of Tuen Mun and Yuen Long in the New Territories while a fleet of buses provide convenient feeder services.

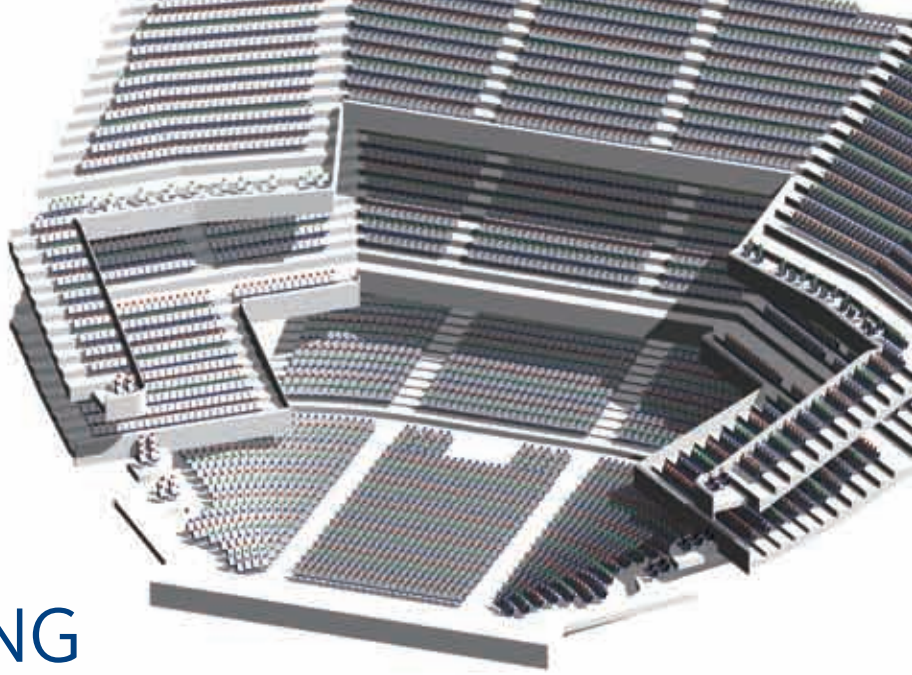
The Corporation also operates the Airport Express, a dedicated high-speed link providing the fastest connections to Hong Kong International Airport and the city's newest exhibition and conference centre, AsiaWorld-Expo.

From Hong Kong, passengers can travel with ease to Guangdong Province, Beijing and Shanghai in the Mainland of China using the MTR's intercity railway services.



“ This project would be mysterious without BIM. ”

Mr. Francis Leung, Director (Head of BIM Team),  
WSP Hong Kong



# DESIGNING SINGAPORE'S SCI-FI BUILDING

**Project:** Singapore Civic, Cultural and Retail Complex (CCRC)

**Location:** One North, Singapore

**Type:** Integrated Complex

**Scheduled for completion:** 2011

The 3D model on Francis Leung's computer screen looks so outlandish, it might portray a gigantic walking machine from a Star Wars movie. Yet it shows the design for Singapore Civic, Cultural and Retail Complex (CCRC), an integrated complex that will soon take shape in Singapore, and with a few clicks of the mouse, Francis Leung – Director (Head of BIM Team) of WSP Hong Kong, takes us into the building, and onto the stage of its centrepiece, a 5000-seat theatre.

The view from on stage shows rows of seats. Another click of the mouse, and Francis Leung adds ovals representing heads, each with lines to mark the levels of eyes. Viewed from on stage, we can see which seats afford views of the stage, and where seats might be raised, or structures moved, so everyone will have a grand view in the finished theatre. “We can walk through, and check every angle,” says Francis Leung. “For example, we can move the camera across the stage from left to right.”





## Complex geometry

CCRC will have 9 levels devoted to civic and cultural space, 4 levels for retail and entertainment space, also 3 levels of carpark in the basement. The theatre will be on the upper floors.

CCRC's architect is Andrew Bromberg of Aedas Ltd., whose projects typically involve very complex geometry. CCRC is no exception: its form and building functions are inter-related, and the geometry is so complex that 3D planning and design proved essential.

Though 2D drawings were tried early in the design process, it transpired the project required a 3D model to centralise all design elements as well as the geometry, giving precise data on all floors.

## Precise 3D planning and design

When Francis Leung joined WSP Hong Kong, he brought experience in working as a structural engineer, and in using Revit for BIM – and soon established BIM teams within WSP's Asian operations. All his projects involve Revit, including the challenging CCRC. His engineering background helps him with the building's geometry, which requires considerable use of mathematics – for instance in Ocean Heights One, a façade will be made from 10,000 individually sized pieces, with eight numbers required to specify the dimensions of each one.

“Our task is to assist with the geometry,” says Francis Leung of the CCRC project. “We use the software to help with establishing the design elements. For example, the complex roof needs geometry, and architects then give us their design intent and we rationalise it and build the building massing, which defines the form of the geometry, so we can put on the building elements such as roof and façade panels.”





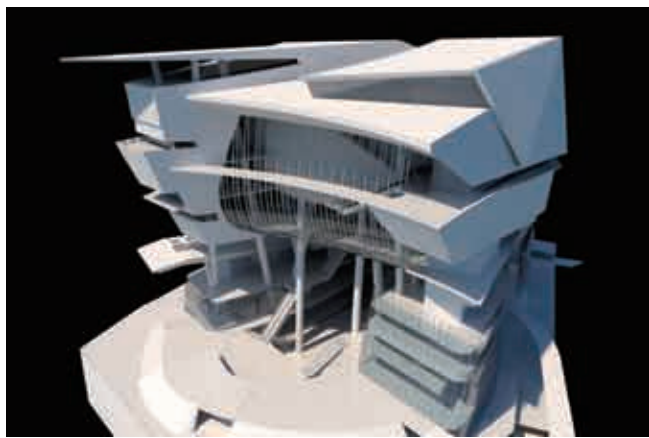
### All planes are real, with re-usable coordinates

Francis Leung believes, “This project would be mysterious without BIM. We need to define the form, and each slab has to follow the form.” With Revit, it is possible to readily create precise 2D sections through the model. “All planes are perfectly built as planes,” says Francis Leung. “Revit can produce re-usable coordinates for corners.” These are akin to coordinates on a 3D map, and help with aspects of construction such as giving dimensions to the manufacturers of the façade.

Revit also generates measurement in terms of dimensions and elevations, enabling the design team to check all spatial requirements, including headroom and passageway widths. Detailed coordinates and elevations define control points for the complex form.

### Enabling coordination between disciplines

The Revit model includes design elements from different disciplines, such as theatre decks, theatre structures, theatre skin, slanted columns, amphitheatre, escalators, façade system and external ceiling, facilitating coordination between disciplines. “All these elements are relatively easy to build to a high level of accuracy in Revit,” says Francis Leung.

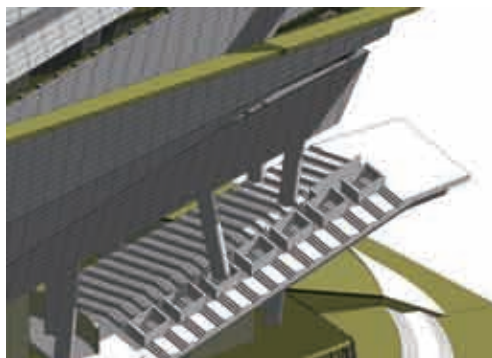


## Checking for clashes, sight lines and structural integrity

Significant potential clashes have been discovered through using the BIM model, including several that would likely have been overlooked with more traditional design techniques. When the design team changed the location of an air cooling tower, the new position looked fine on 2D plans, but an analysis tool in the Revit model showed there was an error. This error was clearly visible on the model, which showed the tower partly protruding from the building façade – and so helped prevent what could have been a costly mistake during the construction phase.

Additionally, using Revit software, Francis Leung and his team are checking sight lines in the theatre, and so helping the theatre designers ensure everyone in future audiences will have a good view of the stage. “We have a schedule showing the exact number of seats being added to the auditorium without tedious manual count.”

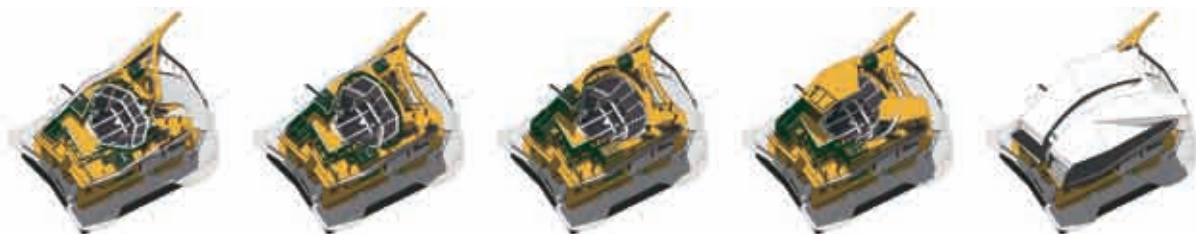
The Revit model also helps with assessing the building's structural integrity. “We take analytical lines for each element, and send them to an analytical model,” says Francis Leung.



## Helping to improve Revit

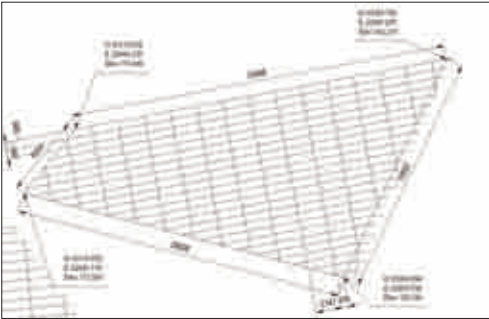
Francis Leung is closely involved with the development of Revit, and says the latest version – 2009 – has several improvements, including handling of joints between slabs and beams. “Before, you had to click around them to put them together,” says Francis Leung. Now, Revit can automatically combine slabs and beams – for complicated structures like CCRC, this results in significant time savings, and eradicates relatively small yet troublesome errors.

Buoyed by successes with CCRC, Francis Leung aims to boost integration of MEP into Revit models, and produce combined services drawings that will help construction work to proceed on schedule, with potential clashes eliminated during design stages.





## ABOUT WSP GROUP



WSP Group plc is a global business providing management and consultancy services to the built and natural environment.

Established in the UK in the '70s and listed on the London Stock Exchange since 1987, the company has grown through strategic development into one of the largest international consultancy groups in the world employing ca 9500 staff worldwide.

WSP operates as a specialist in the property, environmental, transportation and infrastructure sectors providing a full range of services from planning through to design, implementation and maintenance.

Thanks to its multi-disciplinary capability, WSP can offer fully-integrated delivery teams to local and global clients. We have a strong commitment to local business development and sustainability in all of the countries where we operate.

With a proven track record of major project delivery for our clients, WSP has established a world-class client base and enjoys a high level of repeat business.

Clients include government departments and agencies, leading private and public sector organisations and major multi and bilateral international financial institutions.

WSP Group has extensive international experience in America, UK, Europe, Africa, the Middle East, and Asia gained through working in over 60 countries and currently has permanent offices in 35 countries.



## Advisors' comments



### HK Science and Technology Parks Corporation

**Leading by Example** — As an incubator of scientific research and technology development, HKSTP has set a public benchmark through the adoption of transformational technologies and practices in delivering its R&D office building.



### InteliBuild

**The hub for a world-class cargo fleet delivered with world-class digital design practice.** InteliBuild orchestrated thorough BIM operations for design coordination, construction sequencing, and documentation set with over 3000 sheets of drawings.

### Melco Crown Entertainment Limited

**A showcase of BIM applications from resort masterplan, theatrical design, to construction planning and as-built documentation.** Such a wide spectrum of BIM applications has equipped Melco Crown Entertainment with an unparalleled set of project development methodologies.



### WSP Hong Kong Ltd.

**Design Exploration — Empowered by BIM.** WSP Hong Kong has derives a genuine solution to complement organic design ideas with functional, structural, and system rationalization.



### MTR Corporation Limited

**Perfecting facility management.** The Hong Kong Mass Transit Railway has leverages the visual and analytical capabilities of BIM to fine tune the operational performance of its existing stations.



### Calvin Kam

PhD, AIA, PE, LEED AP

#### Vice President, Optima

Strategic Innovation Division  
Development – Architecture –  
Construction – Property Management

#### Consulting Assistant Professor, Stanford University

Center for Integrated Facility Engineering (CIFE)  
School of Engineering

Dr. Calvin Kam is the Vice President for Strategic Innovation with Optima — an award-winning real estate developer currently delivering residential units and retail spaces valued at nearly \$1 billion USD. Dr. Kam is also a Consulting Assistant Professor at Stanford University. Between 2003 and 2008, Dr. Kam co-founded an internationally-acclaimed BIM program at the U.S. General Services Administration (GSA) and served as GSA's first ever National 3D-4D-BIM Program Manager with the Office of the Chief Architect.

## Advisors' comments



### HK Science and Technology Parks Corporation

HKSTP proves that BIM is more than an efficient drawing production and coordination tool. It's objective of using BIM data for leading edge sustainable design demonstrate the true power of BIM.



### InteliBuild

InteliBuild has shown us a way to handle a complex project using BIM with multiple tools. By using Revit, NavisWorks, AutoCAD MEP, and AutoCAD, InteliBuild is able to help designer create the BIM model for this complex project and create over 3000 sheets of drawings that is required for submission.

### Melco Crown Entertainment Limited

Melco shows us that no scale is too large for BIM. A project with 5 hotels, casinos, theaters, and other entertainment facilities, otherwise it would be very time consuming for planning and creating coordinated design using traditional 2D CAD method. Melco has shown us by using BIM, these tasks can be accomplished more efficiently and effectively.



### MTR Corporation Limited

An outstanding example of utilizing BIM for extended purpose. By using the BIM data for facility management and simulation, MTR demonstrate the extra benefit of BIM on top of drawing production efficiency and coordinated drawings.



### WSP Hong Kong Ltd.

WSP HK demonstrates that not only "Experience before it is real" but also "Impossible makes possible". With more complex shapes created by architects, the structural design of such building become a daunting challenge and the limitation of 2D CAD becomes very apparent. With Revit and BIM, WSP has successfully overcome the challenge and show what seems impossible becomes possible.



### Emmanuel Samuel

Sales Development Director,  
Architecture, Engineering and  
Construction (AEC)  
Autodesk Asia Pacific

Emmanuel Samuel is Sales Development Director for Building Solutions Division, Autodesk Asia-Pacific. He is responsible for driving the Architecture Engineering and Construction Business in Asia Pacific.

With more than 18 years experience in the information technology industry, Emmanuel has worked with a range of multinational IT companies such as IBM, and enterprise asset management companies such as Datastream Systems.

## ABOUT AIAB

AIAB (Autodesk Industry Advisory Board) is formed by a group of expertise who are willing to share their valuable experience in BIM (Building Information Modeling) to the public. We currently have members from Hong Kong and Macau region.

## MISSION

Autodesk Industry Advisory Board (AIAB) is an informal and non-profit making interest group that acts as a bridge between industry and Autodesk to have solid and bi-directional communications. AIAB, as its title suggests, has an advisory role. Its main roles include, but not limited to:

- Enhance communication and partnership between different segments in the industry;
- Promote the development, usage and awareness of CAD/CAM/BIM design technology in HK, China and Macau;
- Advance the professional standards on Autodesk products;
- Provide latest technology update (e.g. Building Information Management);
- Provide cross-border technology exchange/visit;
- Express and share opinions and views on CAD/CAE/BIM technology development;
- Act as a platform for technology exchange and experience sharing.



Want to know more about AIAB?

**Contact us now!**

**Joshua So**, AIAB Supervisor

Email: [joshua\\_so@synnex.com.hk](mailto:joshua_so@synnex.com.hk)

AIAB web site: <http://www.aiab.org>



# INTERVIEW



## Y Y Yip

MHKIS, RPS (BS), Authorized Person

**Senior Project Manager,**  
Project Management (1) Department,  
Henderson Land Development Co. Ltd.  
**Chairman,**  
Autodesk Industry Advisory Board (AIAB)

Mr. Y Y Yip is a Senior Project Manager of Henderson Land Development Co. Ltd. He is a Professional Building Surveyor and an Authorized Person. He is Chairman of the Autodesk Industry Advisory Board (AIAB) and plays a key role in promoting BIM application, so the industry and Mr. Yip can continuously improve and deliver excellent performance.



**Q:** What is the Autodesk Industry Advisory Board?

**YY:** It is a group of people who are interested in BIM, and have discovered the benefits, and who had problems with the old design tools. We focus on Autodesk – Revit systems which are for integration and coordination issues. We have around 30 formal members, and hold regular meetings to share experiences with using BIM, and discuss the future development of BIM. We give advice to Autodesk – and we seek improvements from them and clarifications on our demands for the BIM application.

**Q:** Can you briefly cover the history of BIM in Hong Kong?

**YY:** A few years ago, BIM was not too mature in Hong Kong – or even worldwide. Actually, there was no standard definition of BIM; it was just a term for 3D or 4D applications. There were just piecemeal applications and people started to think of how to integrate 3D models with information, to visualise design concepts. At the start, there was some software doing amazing things, which was originally developed for manufacturing, such as for planes and ships, but it involved quite complex mathematical formulae, and there were few experts who could use it. Later, quite a number of BIM systems have become more mature and easier to handle. We set up AIAB three years ago.

**Q:** Why did your company select Revit from Autodesk as your BIM system?

**YY:** Autodesk offers the most comprehensive BIM software, in terms of features and technical support. They currently invest resources in BIM, and Revit is more related to human thinking. After Autodesk acquired Revit, they improved the product, making it more powerful and complete.

**Q:** How does Revit compare with other design software, such as AutoCAD?

**YY:** The original Revit was created with input from a lot of architects – their shared experiences were woven into the software, so Revit is based on designers' thinking. AutoCAD, by contrast, is more a draftsman's tool, different to architects' thinking. Revit is an object based programme – while AutoCAD is geometric software, with points and lines. Revit defines spaces, with objects, areas, surfaces, and you can add attributes that fit your design requirements. For example, if you put a window in, Revit knows it's a window, and the wall holding it will have an opening for it created automatically, but with AutoCAD, you need to redraw the lines to fit in the window.

**Q:** Last year, Henderson was recognised as an outstanding Hong Kong company using BIM, for employing it in construction of the World Financial Centre in Beijing. Do you have plans to use BIM on other projects?

**YY:** We are exploring the opportunity to use it for projects in Shanghai and Shenyang. The one in Shenyang will be the highest building in the city.



Q: Based on your experience, what are the major advantages of BIM?

**YY:** BIM can resolve a lot of major co-ordination and integration issues and can help designers to easily create their designs from concepts they have in mind. BIM can help to resolve design problems involving mechanical equipment, drainage pipes, situations that are headroom sensitive and structure sensitive, so there is no need to rework. We can build on time, and contractors and supervision staffs can work according to the models.

Q: With such advantages, why isn't BIM used in all new construction projects?

**YY:** Some developers may ask, "Why change?" The project stakeholders are very familiar with their current design tools; the adoption of BIM requires them to adopt a new set of tools. Normally, consultants may not want to use it, unless driven to do so by clients.

Q: How about with the World Financial Centre – what were your consultants' views of BIM?

**YY:** Our consultants weren't willing to use it in the first place. But, we explained it in detail to them, and employed an independent BIM consultant to do the co-ordination role. After that, the consultants found it was useful, and want to use it again.

Q: How is the advisory board promoting BIM, including Revit?

**YY:** We try to let the industry know what BIM is, and how it benefits projects. We have arranged BIM conferences, seminars in institutes and – with Autodesk – the BIM awards.

Q: Are there other issues affecting adoption of BIM in Hong Kong?

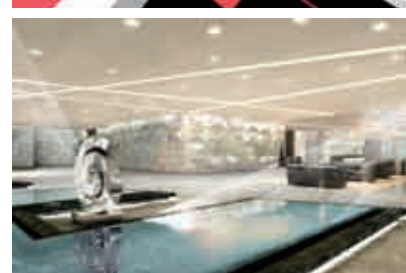
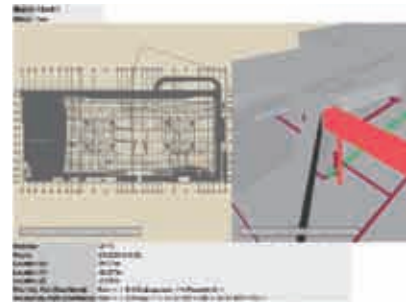
**YY:** There is no standard and reference on how to start a BIM application. Although a lot of companies and people call themselves BIM consultants or experts, only a few are real BIM consultants/managers, and most of them are just modellers without value input. Therefore, we are now preparing guidelines, on how to employ BIM consultants and kick off a BIM application. Also, to use BIM, you need experts. They must be trained, yet in local education institutes, almost no BIM is taught – they're still teaching AutoCAD.

Q: How do you see the future of the advisory board?

**YY:** AIAB will change in time. We want to establish a body that allows more people to join, and we want more relationships with the government. Also, we will make reference to Autodesk as a means for a certification system.

Q: And how do you see the future of BIM?

**YY:** I think that in 5 to 10 years, BIM become more demanding than traditional CAD tools.

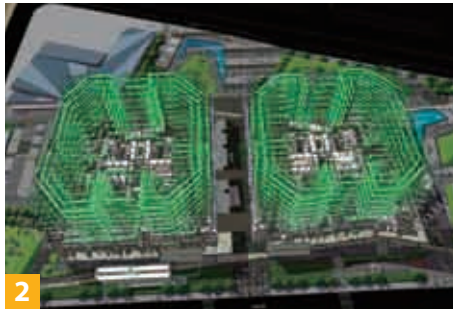




## David Yau

CEng MICE, FHKIVM, MHKIE, RPE

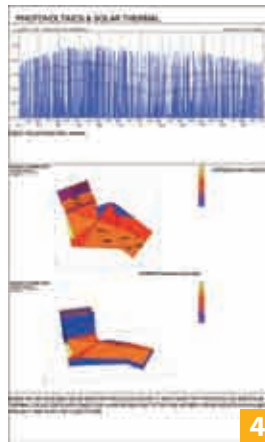
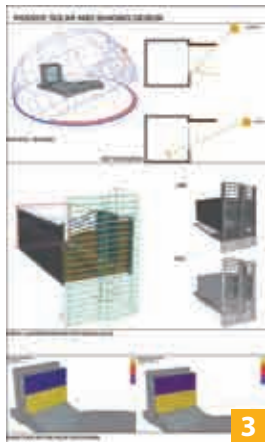
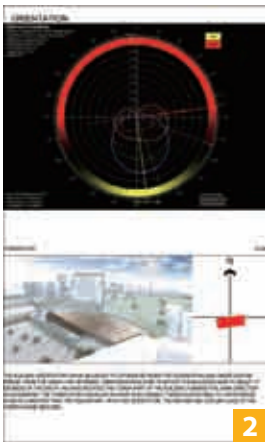
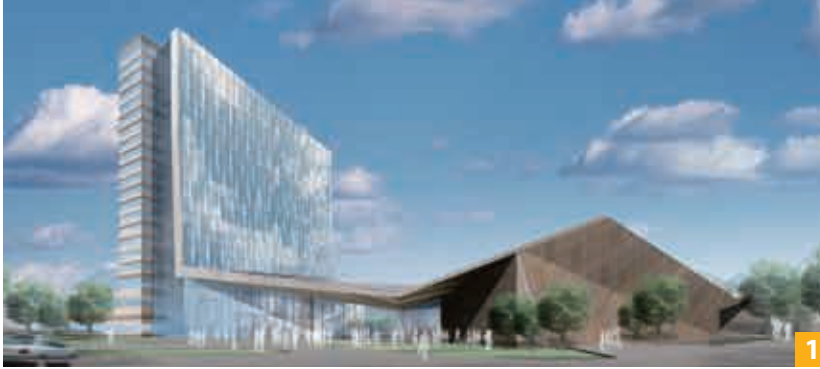
Mr David Yau is a Deputy General Manager in the Project Management Department of Henderson Land Development Co. Ltd. David is a Chartered Engineer with 22 years' experience in engineering and project management. He has played a key role in the industry, and is involved in several committees promoting project management, value management and IT in construction. David was a speaker at Autodesk University 2007.



The World Financial Centre, in the Central Business District of Beijing, is another landmark project of Henderson Land in China, providing International Grade A Offices for financial institutions. Building Information Modeling (BIM) provided a model that helped all team members to foresee and eliminate potential clashes before they happened, thus providing an environmental benefit through reducing unnecessary abortive works and reconstruction.

The Construction Audit Team was greatly impressed by the accuracy of holes and voids left in the structure for implementation of work by the E&M contractors. The BIM model also provided quick response times for delivering visualisations and walkthroughs for the Leasing and Marketing Team, thus helping to locate potential tenants. We envisage a future expansion of BIM to provide the estate management company with a model that help them to efficiently manage WFC.

- 1 World Financial Centre in July 2008 before the Beijing Olympics
- 2 BIM overview of the HVAC layout in the lowest zone of WFC
- 3 Artist impression of completed WFC and landscape park



## Dickson Mak

AIA, LEED™ AP

Associate, Design Architect /  
BIM Specialist  
HOK International (Asia Pacific) Ltd

Dickson Mak graduated from the School of Architecture of USC, and was licensed in the State of Arizona. He first joined HOK since 2002 in Los Angeles, and relocated to their Hong Kong office two years ago. He has been playing the leading role in implementing BIM technologies in both local offices, and recently assumed the role of BIM Specialist for all four HOK Asia Pacific offices.

I have been “addicted” to BIM since my first encounter with Architectural Desktop years ago. For the first six months, it was my new toy at work, and I could not take my mind off it. Its inherent 3rd dimension and data-rich environment allow me to make informed decision by seeing full picture of the design challenge. And my experience with BIM ranges from concept to design development.

Other than its obvious advantages, such as coordinated documentation, BIM is also a tool to rapidly test out design options. Rather than punching a calculator to crosscheck GFA requirements, I can focus

on generating multiple building massing options. Instead of coordinating call out bubbles in the drawing sheets, I can focus on coming up with thoughtful details. BIM software takes painstaking tasks off our shoulders, so designers can do what we do best, which is design.

We also take advantage of Revit embedded data to perform energy simulations with software like Ecotect. Now, sustainable design decisions can be made based on scientific proof rather than educated guesswork. The future is now, and I am glad to have boarded this BIM train early on.

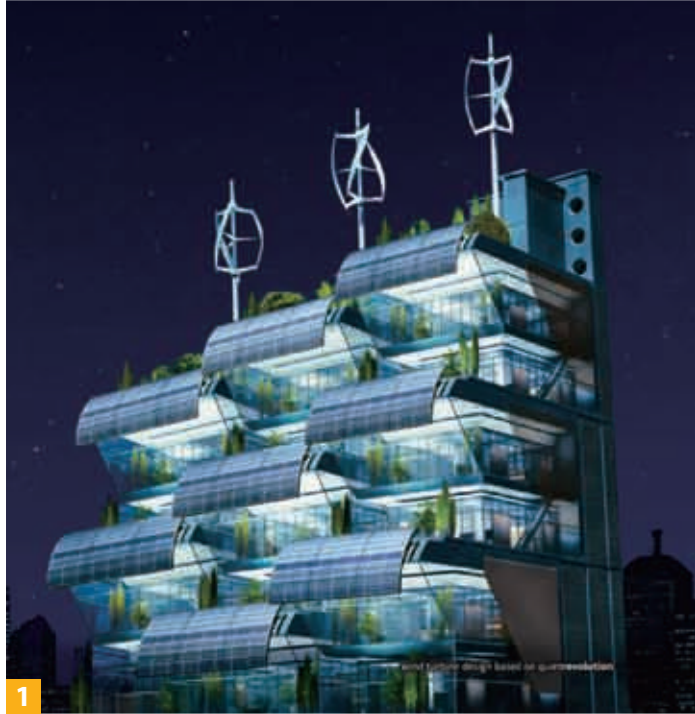
- 1** Rendering of Sheraton Ulaanbaatar Hotel
- 2** Ecotect recommending optimum building orientation
- 3** EcoTect Solar Shading Studies
- 4** EcoTect Thermal Analysis



## Kenny T.C. Tse

MAIB, MHKICM, MIEEE, MPhil,  
BSc(1st Class Hons)

Mr. Kenny Tse is a founding member of AIAB and Lecturer in the School of Property, Construction and Project Management at the RMIT University, Melbourne, Australia. He is also serving as Chair of the Information and Communication Technology (ICT) Integration Committee of the School. His teaching responsibilities include the use of BIM and associated technologies in advanced measurement and estimating. Kenny's research passion is in the integration of BIM and Document Models. He is involved in BIM-related research projects as external co-investigator of the Hong Kong Polytechnic University and the University of Maryland, USA.



BIM gives me excitement, satisfaction and achievement. This is true no matter I worked in Hong Kong or now lecture in Australia. It is because the Olympic motto “One World, One Dream” does apply to the BIM evolution. As a guest of the Victorian Architecture Awards 2008, I have recently seen an amazing array of artistic projects and the ever increasing use of BIM and visualization technologies. This is the dream,

and in fact, that the world is moving from 2D drafting to multi-dimensional BIM. As I can see, Hong Kong is definitely one of the most successful regions in the uptake of BIM around the globe. May I express my congratulations to the Hong Kong BIM awarded organizations of this year. I believe more and more companies will realize immediate competitive advantage by using BIM in the near future.

- 1** Sustainable building on dark-background, built using the Revit and 3dsMax software. Created specifically for the Carbon Footprint Ad, to show how a building's carbon footprint can be predicted before it is built. Credit: Wind Turbine design based on QuietRevolution.
- 2** BIM model by Carr Design Group Pty Ltd., Melbourne.
- 3** BIM model by Architectus, Sydney.
- 4** Snapshot of the Victorian Architecture Awards 2008, Melbourne.

Images (1-3) courtesy of the above companies and Autodesk ANZ Offices





Artist impression



## Stewart Wan

CEng, MHKIE, MIET, MCIBSE, MIEEE, RPE

Mr Stewart Wan is a Project Manager of Hong Kong Science and Technology Parks Corporation. He looks after the IT and building projects for the Hong Kong Science Park development and is in charge of the Hong Kong Science Park's IT unit. Stewart is a Chartered Engineer. In these years, he has driven progressively the adoption of BIM application in new building development of Science Park. This marks as one of the major milestones in new technology adoption for building projects.

The intrusion of Information Technology in construction industry has created opportunities and challenges. Making use of computing software for drawing production has become the “basic” in the AEC industries.

Building information modeling (BIM) is one of the fastest growing new technologies in AEC industries for building development in these few years. We are living in 3D environment rather than 2D, unlike the traditional 2D approach in CAD, BIM allows users to fly into the cyber space freely to visualize what they have designed

and how the services in various trades are coordinated. It serves as a platform for project team members to improve communications in design walkthrough and to facilitate them to witness various construction phases in 3D cyber space.

The success of BIM application in building projects requires the drive from Developer, the commitment from Consultants, and the continue support from Contractors and Operators. I believe the application of BIM in AEC industries will grow continuously and finally become the basic design tool in building projects.

- 1 Hong Kong Science Park Building 20
- 2 Vertical operable louvre façade
- 3 Clash analysis for structural beam and air duct
- 4 Daylight utilization analysis



## C.C. Cho

Mr. CC Cho is the chairman of Chartered Institute of Architectural Technologists-Hong Kong Centre and member of the AIAB.

Mr. CC Cho has been working in architectural field over 25 years and experienced the ability of CAD software to produce construction drawings for many building projects. The power of CAD software is limited to list, analyze, quantify and manipulate data relative to the 2D object that it came from. It is critical to note that CAD no more gives designer the ability to design a building than an electronic drawing board gives CAD operator to do trigonometry. BIM is an ever advancing technology and makes drastically change within the construction industry. BIM model

is directly linked to all 3D elements each other and can be viewed and evaluated from every possible angle. Extracting quantities from BIM model allows design decision to be based on merit and choice. It's not hard to see that design professionals would work diligently to master their design along with mastering BIM software. Many builders and developers are using BIM software to solve other construction issues in the computer simulation process instead of on the job. Owners of buildings are also inevitable to use BIM model to maintain their properties after construction.



# AIAB Members Activities

## AIAB Conference

On November 2007, over 300 attendees attended the AIAB BIM Seminar. This is the third year in a row organized by AIAB. The Theme of AIAB Conference 2007 was "BIM from Now On!" Unlike in the previous year, the whole day seminar was divided into two parts. During the morning session, AIAB members shared experience on their projects that successfully implemented BIM, while in the afternoon, they were generously teaching skills and techniques in different technical sessions so that new users could have a detailed understanding on the most advanced skills on BIM.





## BIM Seminars for Professional Associations

To assist professionals to understand the latest technology of BIM and enable them to apply BIM in daily works; AIAB members often join forces with different professional associations to conduct CPD seminars. Our AIAB members had shared their perspectives on BIM with more than 300 attendees from different professional groups in their CPD Seminars

### Australian Institute of Building



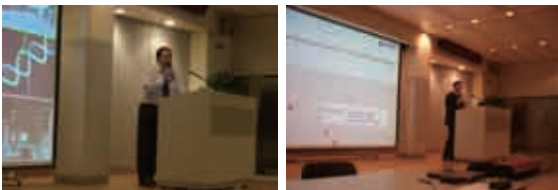
### The Chartered Institute of Plumbing and Heating Engineering



### The Chartered Institute of Building



### Hong Kong Construction Association



## Metro Radio FM104

8 episodes of “BIM – A New Chapter of Building Industry” (BIM – 建築新紀元) at Metro Finance Channel FM104 (新城財經台) were broadcasted on every Saturday between 16th June to 4th August 2007. Our AIAB members discussed with the host Joanne Chan (陳美思) on the latest technology in building design.





## Revit and 3ds Max Design 2009 Release Party

On May 2007, to celebrate the latest release of Autodesk Revit and 3ds Max design, more than 300 professionals from Architecture, Interior design, Engineering and Visualization fields joined together. AIAB members shared experience on the application of Revit and 3ds Max in their projects.



## Seminar in Korea

Our AIAB members conducted BIM seminar in Korea.



## Revit Expert Conference – China

The two-day conference was held in International Conference Center of South China Science & Technology University. Three AIAB members presented in the conference and shared their experience with more than 380 audience. Chinese Revit users were exciting as they saw the technology is changing the industry.



## Autodesk University 2007

Autodesk University (AU) 2007 is a whole week activity that Autodesk gathered more than 9000 users from all over the world to join together to explore the latest trends and technologies. There were more than 600 classes, labs, and lectures to help user to boost the productivity and skills. Many of the classes were taught by power users so that practical experience could be exchanged among the users. There were 18 AIAB members attended AU and 3 of them conducted 4 lectures. Hong Kong user David Fung won the Worldwide BIM Award and the Award presentation was also conducted in AU.





*Autodesk and PolyU signed a Memorandum of Understanding on 16 May 2008 on Poly U campus.*

## **PolyU receives \$6M software donation from Autodesk**

The Hong Kong Polytechnic University (PolyU) has recently received HK\$6 million worth of software donation from Autodesk. This benefaction will enable PolyU students in the building disciplines to keep abreast of Building Information Modeling in building and civil engineering projects and support the University to further develop research in related areas.

Under the donation agreement, a total of 31 licenses of professional software, including Autodesk Revit Suite 2008, Autodesk Civil 3D 2008 and Buzzsaw would be given to PolyU's Department of Building and Real Estate for free, for a period of two years.



*Mr. Simon Galpin, Associate Director-General of Investment Promotion at Invest Hong Kong welcomed the establishment of Autodesk's data centre in Hong Kong.*

## **Autodesk Launches Inaugural APAC On-Demand Project Management Service in Hong Kong SAR**

Autodesk launched the new Hong Kong Data Centre in Hong Kong, the first such facility for the company in the Asia-Pacific in July 2008. The newly established Hong Kong Data Centre will provide high availability of Autodesk Buzzsaw's on-demand service for customers across the Asia Pacific. Autodesk's choice of Hong Kong was the culmination of a thorough three-year selection and business-case assessment process.





A reimbursable course of the CEF  
Course Code: 22C075305  
Institution Code: 518  
Institution Name: WELKIN

**Autodesk**

Authorized Training Center

**榮獲**

Autodesk Best Authorized  
Training Center, Hong Kong

報名查詢 : 3605 3322 / 2332 2302

[www.welkin.com.hk/rvt](http://www.welkin.com.hk/rvt)

歡迎公司/機構查詢培訓服務

BIM技術為建築設計工作帶來了革命性的轉變。BIM將所有資料集中管理，智慧關聯數據，模型中任何一個檢視圖的變動，都可以連動其他檢視圖作出相應的改變，令設計人員大量節省時間和成本，減少工程失誤，更易預見成果。課程採用Autodesk標準課材，教授如何使用Revit Architecture實踐BIM技術應用。

# Certificate in BIM Design with Autodesk Revit

# BIM

30小時課程, CEF資助後學費低至

# \$1,440



Welkin Professional Development & Training  
天行專業發展及培訓  
[www.welkin.com.hk](http://www.welkin.com.hk)

香港中環干諾道中34-37號華懋大廈2樓 (交易廣場對面)  
九龍旺角彌敦道585號富時中心3樓 (信和中心對面)





**Summit**  
Technology (HK) Ltd.

**Autodesk**  
Authorized Training Center

# From 2D To 3D



- Revit **Architecture** / **MEP** 3 Days Training
- Building Information Modeling (BIM) Overview
  - Introduction of BIM software, Autodesk Revit
  - Drawing Skills of Revit **Architecture** / **MEP**
  - Export to AutoCAD
  - BIM Project Implementation



- 3ds Max** 3 Days Training
- Introduction of **3ds Max**
  - Modeling, Material, Lighting, Animation
  - Convert from **Revit** to **3ds Max**
  - Mental Ray Rendering Skills

## Enquiries:

Room 1903, Aitken Vanson Centre,  
61 Hoi Yuen Road, Kwun Tong, Kowloon

Tel: 2926 0002

Fax: 2359 3649

Email: [marketing@summit.hk](mailto:marketing@summit.hk)

Website: [www.summit.hk](http://www.summit.hk)

## **Autodesk**

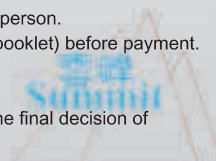
**Premier Solutions Provider**  
Building Architecture  
Building Engineering  
Building Structure

## **Discount Coupon**

You can get 10% discount for sign up any course with this coupon

### Terms & Conditions:

- Each coupon can be used once per person.
- Please present this coupon (or this booklet) before payment.
- Valid original only.
- Valid Until 30-11-2008.
- Validity of the coupon is subject to the final decision of Summit Technology (HK) Ltd.





Professionals working in CAD/CAM, DTP and other graphics fields will welcome the ColorEdge CG301W's superb image quality, operational versatility and it's 30" screen.

100%  
Japan Made



[www.eizo.com](http://www.eizo.com)

### Premium Edition Model

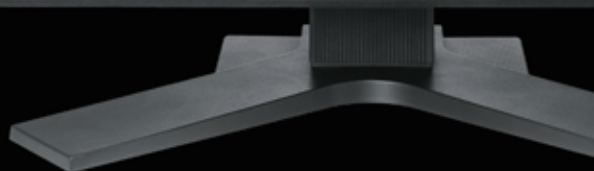
As a ColorEdge Premium Edition model, the CG301W offers the following benefits.

# CG301W

- Brightness and color compensation with EIZO's Digital Uniformity Equalizer (DUE) function.
- 16-bit internal processing for grayscale rendering that is on a par with high-end CRT monitors.
- A color gamut that reproduces 97% of the Adobe RGB color space.
- Brightness Stabilization Function - A drift correction sensor quickly stabilizes the brightness level after startup or coming out of power saving mode
- Dual DVI-D inputs (digital) are included for connecting to two PCs

### Work in Comfort with 30" of Screen Space

The 30" screen with its native resolution of 2560 x 1600 gives you more than twice as many pixels to work with as a 20 or 21 inch monitor with a 1600 x 1200 resolution.



## HP xw4600 Workstation lets AutoCAD users

Premier Business Partner



- Visualize, simulate and analyze your ideas
- Optimize and improve designs before creation
- Create photorealistic rendering more efficiently

### Specifications

- Intel Core 2 duo E7200 (2.53GHz, 3MB Cache)
- 1 GB DDR2 800 memory
- 160GB SATA HDD with NCQ technology
- 16X SATA DVD+-RW
- Nvidia Quadro NVS 290 256MB PCIe graphic card
- HP xw4600 workstation included 80+ power supply for energy saving
- Windows Vista Business

HP xw4600 Promotion Price: HKD**6,888**

- \* Promotional Period: Until 30th September 2008
- \* Memory & Graphic Card can be upgraded. Please contact hotline below
- \* Valid till stock lasts.

Act Now!

Enquiry hotline : (852) 2753-1683

联強國際 正品行貨 信心承諾  
[www.synnex.com.hk](http://www.synnex.com.hk)



## About Autodesk

Autodesk, Inc. is the world leader in 2D and 3D design software for the manufacturing, building and construction, and media and entertainment markets. Since its introduction of AutoCAD software in 1982, Autodesk has developed the broadest portfolio of state-of-the-art digital prototyping solutions to help customers experience their ideas before they are real. Fortune 1000 companies rely on Autodesk for the tools to visualize, simulate and analyze real-world performance early in the design process to save time and money, enhance quality and foster innovation.

Founded in 1982, Autodesk is headquartered in San Rafael, California. For additional information about Autodesk, visit [www.autodesk.com](http://www.autodesk.com)

# Autodesk

## **Autodesk Far East Ltd.**

Suite 1405, Great Eagle Centre,  
23 Harbour Road, Wanchai, Hong Kong

Phone: +852 2824 2338

Fax: +852 2824 3228

Website: [www.autodesk.com.hk](http://www.autodesk.com.hk)