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Ho Koon Kau
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INSTITUTION
**The Chinese University of
 Hong Kong**

PROJECT NAME
**Renovation for Humanitarian Project –
 Zheng Sheng College**

PROJECT LOCATION
Zheng Sheng College

TYPE
Humanitarian Project/Educational

AUTODESK PRODUCTS USED

AutoCAD

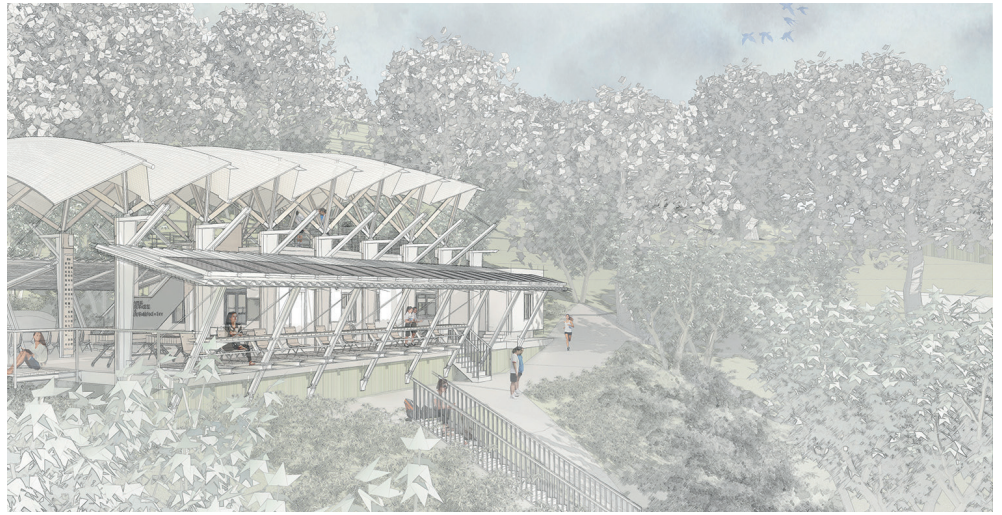
Autodesk Viewer

BIM 360 design

CFD

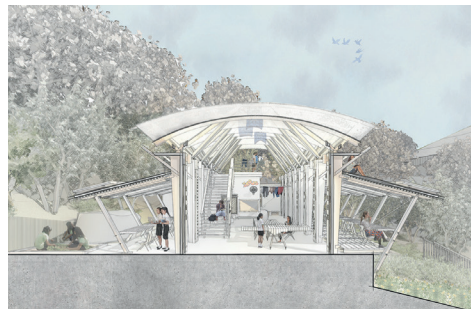
Insight

Revit



Girls' Dormitory
 Image Courtesy of The Chinese University of Hong Kong

Integrating BIM and CFD to improve living quality in humanitarian project



Girls' Dormitory – Section
 Image Courtesy of The Chinese University of Hong Kong

Project Background

This is a humanitarian project carried on by three students (Chan Wing Chun, So Wing Kei, and Leung Ka Ho) and applied with Autodesk package by our team from school of architecture in CUHK.

Zheng Sheng college, labelled as “underprivileged group” in HK, under the scope of Humanitarian architecture, which is defined as the demonstration of the power and simple skills of design to improve lives. To us, Autodesk package perfectly showcases of that force. For example, insight highlights the overheat gain of existing asbestos roof when CFD suggests us the effective headroom to increase wind velocity under the roof.

Project Challenges and Solutions

As an educational humanitarian project, limited resources is our major limitation during the year of our thesis, in terms of consultant fee in professional simulation. However, being a “real project” rather than fictional thesis, precise simulation, improving human comfort, becomes important consideration undeniably, especially the school without air conditioning system in the whole year.

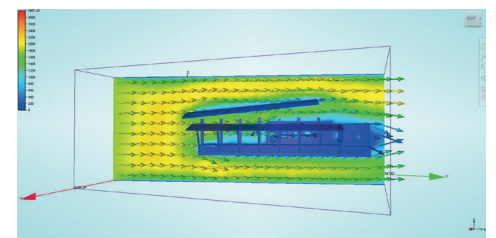
With an educational license, we could enjoy a full version of Autodesk package including Revit, AutoCAD, Insight, CFD and BIM 360

for team collaboration. The package serves us the whole design stages including concept presentation, drafting, simulation, calculation, final presentation, and also exporting different file format, e.g. stl., for model making.

How does BIM help for your project?

By using BIM, it provides us with a rich and multi-directional experience in our architectural design project, which do not limit in model making and architectural submission, but also for conceptual graphic presentation, simulation, and communication in different stages of our project.

During the year, there were several interim presentations in searching different design options for the end users, Revit allows us to save different options in one file and produce drawings for presentations. Insight, a great auxiliary tools, helps to automatically create energy models from concept to detail design. Moreover, It provides solar PV performance analysis quickly. CFD, the fluid dynamics simulation software predict and boost efficiency of wind energy to cool down the environment under the pavilion. BIM 360 benefits internal communication in our group.



Girls' Dormitory - CFD Simulation
 Image Courtesy of The Chinese University of Hong Kong

Finally, we sincerely thank Prof. Edward Ng, and principal Alman Chan for all the help in the project.