

KINGSPAN

CASE STUDY

New offsite building construction has changed everything. . .

Taking advantage of offsite construction methods for large and complicated bespoke building projects was unimaginable a few years ago.

Kingspan, one of the UK's leading building products specialists, utilises its cutting edge design and engineering techniques to manufacture even the most sophisticated buildings offsite, including: residential apartments, schools, healthcare and office blocks. It seems Kingspan is looking to change the construction industry for good!

Mark Stevens, Product Development Manager for Metl-con Ltd, the division of Kingspan which incorporates Kingspan Offsite product range, explains how they do it: "Uniquely, we have combined our renowned cold rolled steel and modular construction experiences and skills with the latest 3D computerised design software, SolidWorks supplied by NT CAD/CAM. This is the hub of our design system and information system, responsible for allowing us to manage even the most complicated projects."

Offsite build requires a different approach to traditional architectural methods. Kingspan designs from the bottom up, and inside out, to ensure accurate site assembly, build strength, quality and function, of aesthetically pleasing modern buildings. Stevens comments: "Architectural AutoCAD software and cross-sectional drawings were simply unable to handle or show the vast engineering detail we required during design and prototyping. So, after research and trials, we adopted a true engineering design tool in 'SolidWorks Office Professional', supported by NT CAD/CAM."

Kingspan's product team rely on SolidWorks to design every component: walls that interact with floors; structural fastening and connectivity; service routing and installation; manufacturing and final system assembly design.

Stevens adds, "Prototyping is essential to every development project. SolidWorks allows our engineers to review extensively the prototypes on screen, as the detailed 3D modelling allows us to select options quickly and precisely. Then, only the best are physically modelled to provide an example for testing and customer approval."

Kingspan offsite manufacturing utilises the same principles as the automotive industry. That is to say, basic platforms offer standardisation and significant cost advantages to the customer, and upon them Kingspan's team can design structural, thermal, acoustic, visual and layout schemes to meet even the most demanding building specifications and client customisations.

With so much data, Stevens says: "We have adopted SolidWorks PDM-Works, the Product Data Management solution. This ensures that when a design change is made, all associated bills of materials are automatically updated. Through this software, we can rely on accurate revision control and file history to maintain our high build quality."

Stevens continues: "SolidWorks is intuitive to use. The software is capable of handling the vast quantity of tasks quickly and, thanks to the help we receive from NT CAD/CAM, we continue to expand our system." Future projects include incorporating COSMOSWorks 3D modelling of stress, strain and displacement forces in parts and assemblies and using PhotoWorks to create clear photo-realistic images to aid customer presentations.

Stevens finishes by praising NT CAD/CAM. "Our team is able to easily adapt to the many advantages of SolidWorks due to the excellent service from NT CAD/CAM's experts. The extent and quality of coaching has exceeded our previous experiences the support has simply been unbeatable. Even specialist software requests that cannot be met have appeared as updates in later software issues. . . It's nice to know you are listened to! This is a true partnership upon which we can rely."

Due to the latest design technology and its implementation by the skilled team at Kingspan even the most adventurous bespoke building projects can be built offsite. The advantages of speed, reduced costs and elimination of onsite build risks - such as overrun, shortage of skilled manpower and extensive health and safety issues - means the construction industry is changing for good. Kingspan, with the use of NT CAD/CAM's SolidWorks, is leading the way.