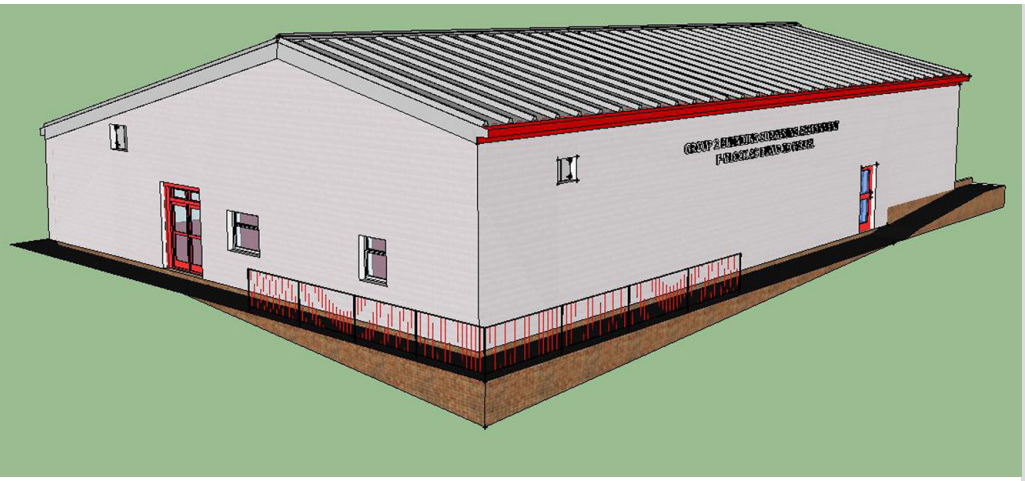
Leica Geosystems TruStory
Measured Building Surveying
Coleg y Cymoedd, Ystrad Mynach



In August 2013 The College Ystrad Mynach and Coleg Morgannwg merged to become Coleg y Cymoedd which means College of the Valleys. By joining together Coleg y Cymoedd is now one of the largest futher education providers in Wales with an estimated 20,000 learners choosing to study and over 1000 members of staff. Coleg y Cymoedd has several campus locations throughout the Boroughs of Rhondda Cynon Taff and Caerphilly offering its own unique learning environment.

"We were able to survey the building areas where it would have been impossible to do with a conventional tape / measuring device."
Stephen Ward, Corse Tutor, Faculty of Technology & Built Environment for Coleg y Cymoedd

Challenge
A group of HNC students in the Faculty of Technology & Built Environment were tasked as part of their Building Technology course to survey the electrical workshop on campus. To ensure that each student in the class was involved in this project, Stephen Ward (course tutor) created four separate project teams to ascertain the 3D model of the building. The challenge for each project team was how to survey this complex structure with different room sizes, floor and wall variations and produce a 3D model of the structure within the given time frame.

Solution
The surveying process was categorised into three different stages. The first was to survey the external building. The next stage was to measure up the different partitions internally including the different wall variations, windows, doors and stairs. The final stage was to integrate the two surveyed data sets together to obtain a 3D model of the building.

To help them to achieve this goal within the limited time frame, the students opted to use the Leica

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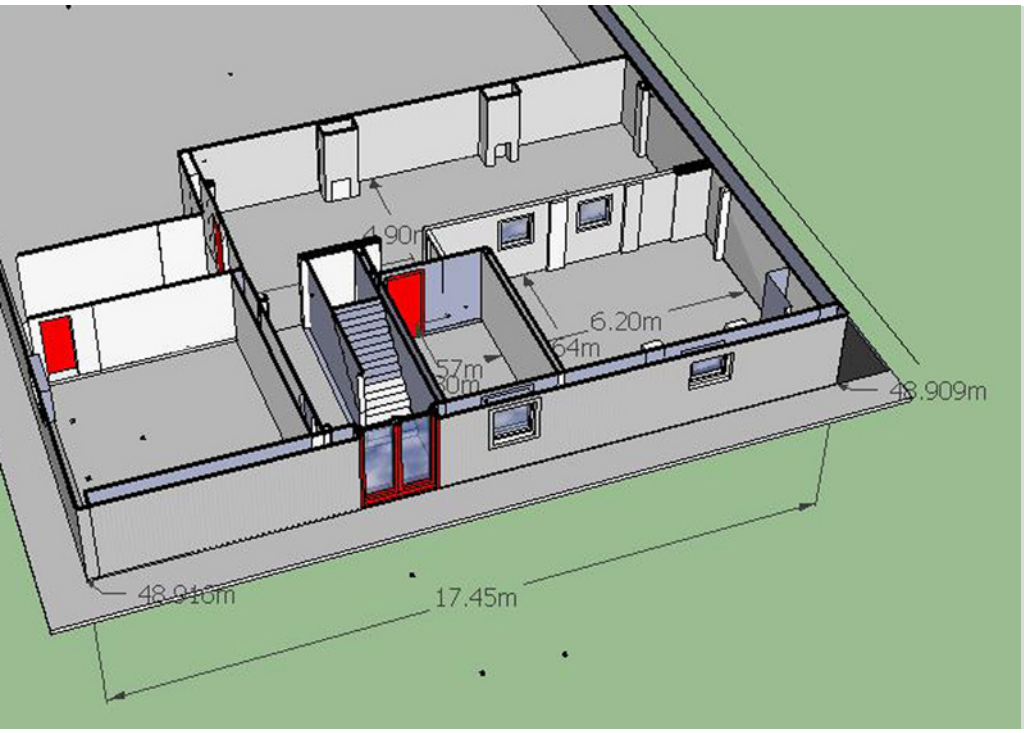
Task
Survey the electrical workshop on campus to ascertain the 3D model of the building

Solution
Leica 3D Disto was used to survey the internal partitions and external area of this complex structure

Results
The measured data was transferred into a CAD modelling software to achieve the 3D model of the building



Product highlights

- Measure plan position, height and distance in all three spatial axes
- Precision: accurate to 1mm at 10m
- Integrated camera
- Digital pointfinder with 8x zoom for precise pointing over longer distances
- Wireless connection between sensor and hand-held unit eliminates the hassle and limitation of cables
- Hand-held unit with a modern touch screen, high resolution colour display
- Recording information in the form of standard tables, photos, DXF files, text files at the press of a button

For more information, please email:
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3D Disto to survey this complex structure.

Room scan

The room scan function produces a horizontal or vertical profile of your room automatically providing a detailed plan of the room. All four groups used a common control framework so that the different data sets could be integrated. Four separate measuring stations were set up to measure from simultanously. The hidden corners or points were measured by using the 4x camera on the 3D Disto position the laser dot – without the need to walk to the target. Wall measurement with details

All the wall surfaces including windows, doors, internal partitions and structural features were measured thanks to flexibility of the unit in measuring curved surfaces, skew walls and unreachable places. Detailed survey data was saved in the memory of the control unit.

Result

After surveying the building, the measured data from the survey by the students was transferred into their CAD modelling software. This resulted in providing a detailed analysis of the building such as records of the ceiling, floor and roof surfaces, volumes, inclination, falls, height differences and angles.

By integrating the different surveys together, the students were able to ascertain the 3D model of the building. The students were able to survey all the hidden areas of the building where it would have been impossible to do with a conventional tape or measuring device.

The 3D survey result provided a valuable introduction to BIM which is further explored in their course.

"The precision and ease of use of the 3D Disto now means I can reduce teaching about data collection and spend more time on data evaluation."
Stephen Ward

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- when it has to be **right**

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