

Plowman Craven's Spec for BIM Ready Modelling



One of the UK's leading survey firms has produced a client ready specification for BIM surveys and deliverables. Richard Groom runs his eye over the content.

Who better to write a BIM specification than a company that was there at the start. Plowman Craven's (PCL) BIM specification first appeared several years ago and has just been updated and revamped. Like all good specifications it is an interface document that bridges the gap between the client and the surveyor. This bridge is simple and functional. At first glance 64 pages seems a little daunting but the contents are straightforward and easily understood. It is arranged in three parts that are preceded by a short introduction. This guides the client on critical factors for success (largely down to the client) and offers a process for establishing the specification, routes of communication and delivery – which

are 'suggested' by PCL. Project management by the surveyor: a good idea.

Client Guidance

The first 24 pages is an outline description of the key factors that need to be considered when producing a BIM-ready survey. The specification is written around production of models using Autodesk's Revit software. Having acknowledged that Revit is the standard, the description is written using this software's terminology, which the client's Revit modellers (and hopefully also the BIM manager) will understand. The specification assumes that laser scanning is used for data capture, which one would expect, but also includes high dynamic range imagery as standard.

Having scanned the site, TruViews of the scans are made available to all stakeholders via a web portal, or other means. Collaboration is an essential aspect of BIM and Leica's TruView enables visual tours of the survey to be made available to all interested parties at an early stage in the overall project.

3D parametric modelling is the final stage in the survey process. PCL recommends its clients to entrust this process to the surveyor, rather than to do it themselves. The company argues that, by getting the surveyor to do the modelling, full responsibility for the quality of the model rests with the surveyor. Yes, but surely it is a straightforward matter to demonstrate the accuracy of point cloud data and some clients will see an advantage in carrying out the modelling themselves. It would perhaps be better to emphasise the surveyor's skill at control of survey accuracy, data organisation and management when persuading the client to give the modelling work to the surveyor. The option of point cloud delivery only is perhaps discounted a little too readily and consequently the specification glosses over the quality of the point cloud data. For example, will the point cloud be delivered with spurious points removed?

Levels of Detail

The specification describes the concept of models at different levels of detail from 1 through to 5. Interestingly, each level is related to a traditional drawing scale and to dimensions via the rule of thumb that a drawn line is accurate to within 0.3mm at drawing scale. The concept of levels of detail used here suits the purpose of this specification. It would make sense for it to tie up with city model levels of detail, but it seems that there is little standardisation in that area either.

One of the problems with 3D modelling of buildings is that walls are never perfectly flat or vertical and floors and ceilings are seldom perfectly flat or horizontal. PCL deals with this by offering three levels of modelling tolerance for the difference between observed points in the point cloud and modelled surfaces.

The first section concludes with 'Project Considerations', which includes density of the point cloud, survey grid, how to deal with inaccessible areas and plotting of 2D views of the model. Clients who require modelled data should also receive point cloud data and the specification considers if or how the data should be decimated to make it more manageable for the client.

Survey Brief

The second section (Appendix A) is a checklist of client requirements. Its position in the document ensures that the client has no excuse for failing to read the preceding section before ticking the boxes. The checklist starts with modelling requirements, which does not seem totally logical from a technical point of view but emphasises the company's enthusiasm for modelling.

Detailed Specification

Appendix B goes into more detail about building modelling methods. As well as dealing with the detailed representation of features such as doors, lifts and stairs, it includes a QA checklist.

There is a final appendix 'C'. This gives information for the model user and gives warnings should the client intend to export the model to other formats.

This specification is clear, concise and client friendly. As stated in GW's review of the first issue of this document, it is a pity that there is no generic specification for BIM-ready surveys. As one would expect, there is a marketing element to the document, but it is subtle and by no means hinders its usefulness.

This article was published in Geomatics World May/June 2014

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