

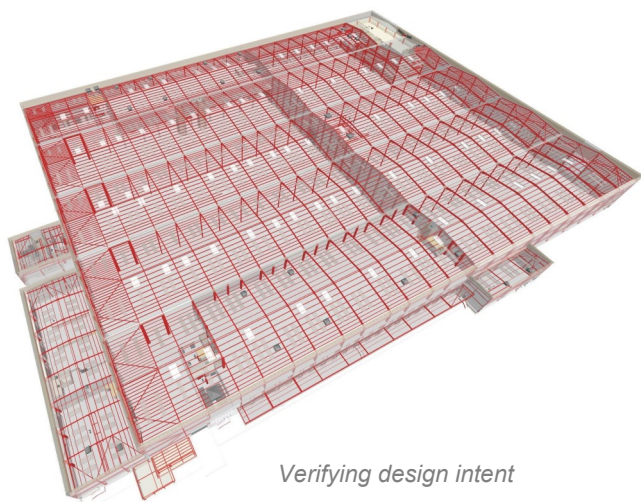
## CONSTRUCTION VERIFICATION



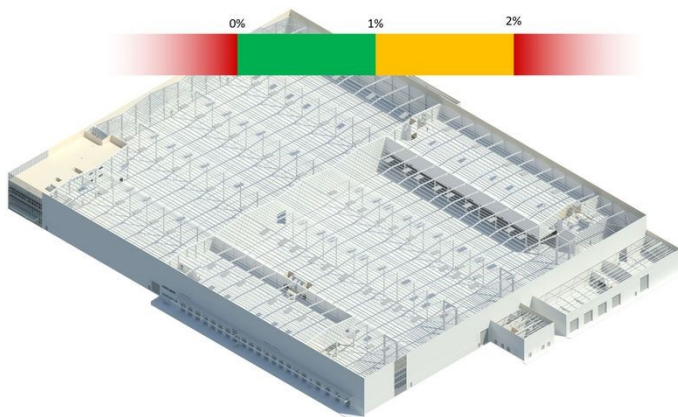
**Plowman Craven's verification services precisely record and compare the as-built condition against the design intent in order to establish whether or not it meets the client's requirements.**

With more than 50 years' survey experience and a market leading BIM Centre of Excellence (that holds a BSI BIM Kitemark) we are well placed to provide verification services that will ensure:

- Provision of independent verification certification
- Confirmation of positional and rotational accuracy
- Client's critical dimensions are met
- Clear visualisation of conformance to agreed tolerances
- Variety of verification deliverables to meet client needs



Verifying design intent



## Valuing Independent Verification

### ■ In the Design Phase:

De-risks design intent and provides confidence in existing built information. In doing so, the likelihood of re-work, programme creep due to inaccurate base data, and consequential contractual variations are minimised.

### ■ In the Construction Phase:

Fulfils client's verification requirements pre-handover, often stipulated in scope of services (particularly BIM projects).

Provides main contractor with a level of confidence in sub-contractor deliverables before sign-off.

Provides designers with confidence that what exists on site reflects their designs. Should variances exist, these can be highlighted and resolved in a timely fashion.

### ■ In the Operations & Maintenance Phase:

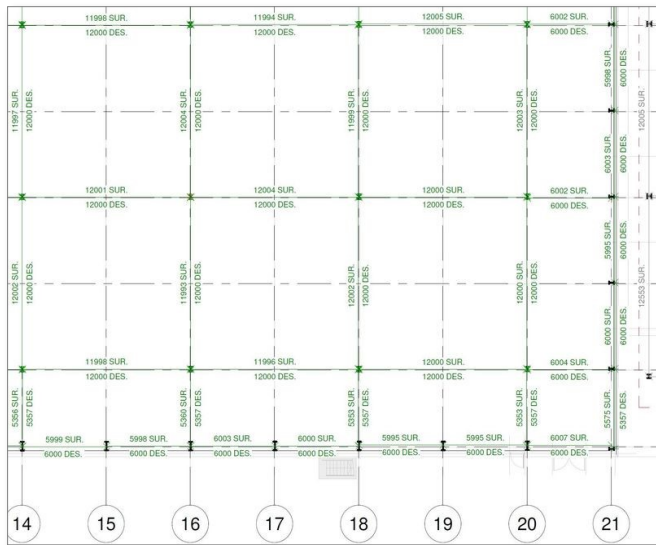
With verified as-built information, decision making for OpEx (O & M) and CapEx (refurbishment) works can be built on robust and accurate information.



### Viable Verification

Plowman Craven offers a number of independent verification options that look to either verify the as-built condition on site to satisfy client verification requirements, or instead de-risk the design intent through verifying the geospatial assumptions made. We generally recommend either:

- A 'quick touch' reporting approach, usually undertaken in a short duration which aims to highlight, in our opinion, the key discrepancies between the design intent and as-built condition.
- A detailed and rigorous approach, undertaking a full review of all as-built elements and comparing their type and position (translation and rotation) in comparison to the design intent. We utilise a RAG (Red Amber Green) rating system to illustrate conformance to agreed tolerances.
- To ensure that we capture all elements within the site, it's sometimes necessary to attend site multiple times once milestones are reached, e.g. pouring of slab completion, post-erection of primary frame, post-installation of upper floor steels and deck, completion of first fix.



### Visualising Verification

An example of a typical project tolerance criteria is as follows:

- A comparison analysis will be undertaken through a Red, Amber, Green system, enabling clear illustration of whether the permissible tolerances have been achieved, are close to the permissible limit, or are not compliant.
- **Red** – Not compliant; Identified if deviation is less than 0% or greater than +2% of the defined critical dimensions.
- **Amber** – Close to permissible limit; Identified if deviation is between +1.0% to +2% of the defined critical dimensions.
- **Green** – Compliant; Identified if deviation is between 0% to +1% of the defined critical dimensions.

#### About Plowman Craven

Plowman Craven provides integrated measurement and consultancy services to the property and infrastructure markets, pioneering the use of technical innovation to deliver proven expertise and trusted results throughout the project lifecycle.

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