

From a Locked BIM Model to a Working Take-Off Spreadsheet

A working case study: extracting quantities and classification data from a precast concrete tank IFC model, when the licensed BIM viewer couldn't export it.

444

Elements read from the model

245m

Post-tensioning duct identified

0

Cost - no paid BIM licence used

A Viewer, Not an Export Tool

1 Licence wall

The free tier of the BIM viewer in use lets you open and inspect a model, but its Information Takeoff (export) tool is locked to the paid Advanced/Premium tiers.

2 Manual re-entry

Without export, quantities normally get retyped from the on-screen viewer one component at a time; slow, and an easy place for transcription errors to creep in.

3 No formal classification

Models exported from fabrication software (Tekla, in this case) often carry no formal IFC classification; just a profile name, a material, and a generic IFC entity type.

4 The reading problem

The real quantities exist in the file, but they're spread across different property sets (Tekla Quantity vs. IFC BaseQuantities) - not obvious to open and read directly.

Where AI Does the Work — and Where It Doesn't

STAYS WITH THE ESTIMATOR

- Deciding which quantities and classification fields actually matter for the take-off.
- Walking the physical model to sense-check what the raw data is describing.
- Engineering interpretation; recognising duct profiles as post-tensioning provision, not steel framing.
- Final review of every figure before it's used for pricing or coordination.

BUILT AND RUN BY AI

- A script that reads every element in the IFC file, not just the ones a template happens to cover.
- Correctly resolving quantities across whichever property set actually holds them per element.
- Precision handling tuned per field, so small components (duct segments, plates) don't round to zero.
- A clean, filterable Excel export; classification and dimensions only, no clutter.

THE OUTPUT

444 Elements Read, In One Pass

Classification and quantities only; IFC type, name, profile, material, storey, and dimensions — ready to filter, sum, and pivot.



Every figure traces back to the model's own property sets - Tekla Quantity where present, IFC BaseQuantities as a fallback. Nothing estimated or interpolated.

This runs on any Tekla-authored or general IFC2X3/IFC4 model; beams, columns, slabs, walls, ducting, whatever the file contains — with the same lean output shape every time.

THE OUTPUT

Straight From the Export — No Mock-Up

The top rows of the actual 444-row spreadsheet generated from this model - filterable, frozen header, ready to pivot in Excel.

IFC Type	Name	Profile / Type	Preliminary Mark	Material	Storey	Length (mm)	Width (mm)	Height (mm)	Volume (m3)	Weight (kg)	Net Surface Area (m2)
IfcBeam	Flange	D200		STEEL/S275JR	Undefined	11	200	200	0	2.04	0.058
IfcBeam	Flange	D220		STEEL/S275JR	Undefined	11	220	220	0	2.33	0.066
IfcBeam	Flange	D220		STEEL/S275JR	Undefined	11	220	220	0	2.33	0.066
IfcBeam	Flange	D200		STEEL/S275JR	Undefined	11	200	200	0	2.04	0.058
IfcBeam	Flange	D200		STEEL/S275JR	Undefined	11	200	200	0	2.04	0.058
IfcBeam	Bellmouth DN80mm	BELLM80*160*135*9		STEEL/S275	Undefined	198.9	0	134.2	0	1.74	0.054

First 5 of 444 rows shown. GUID column hidden here for readability; it's included in the actual file for traceability back to the model.

444

Total rows in export

13

Columns of classification & quantity

100%

Elements read; no template gaps

THE INSIGHT

What the Data Actually Told Us

174 elements sat in the export tagged “IfcBeam” with material “PVC.” Read literally, that looks like a steel beam mislabelled as plastic pipe. On-site inspection of the physical model showed otherwise: short duct segments, one per precast panel, sized and profiled exactly like a post-tensioning sheath.

The data and the physical check agreed once the right question was asked: the tank is post-tensioned on erection, and this is the duct provision cast into every wall panel for it; not steel framing, and not the strand itself, which is threaded through later and never modelled at all.

WHY THIS MATTERS

Data out, no new spend

A full model read-out without buying a BIM license upgrade; the script works from the IFC file itself.

Nothing left behind

Every element in the file is read, not just the types a pre-built export template happened to cover.

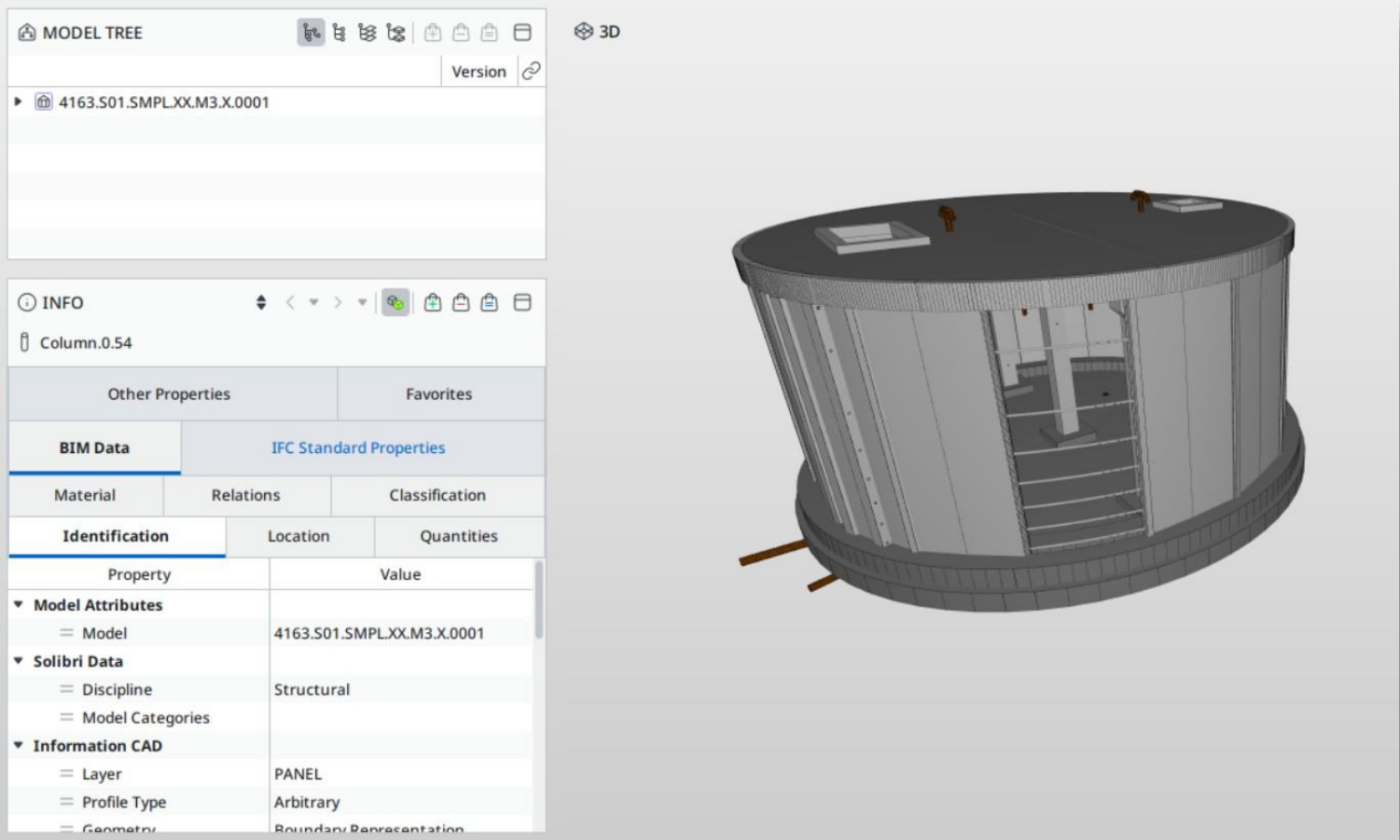
Judgement still required

The extraction got the numbers out fast; identifying what those numbers actually represented still took a QS to validate them.

The Model

Precast Concrete Tank

The model was designed by Shay Murtagh Precast Ltd. and viewed using Solibri.



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