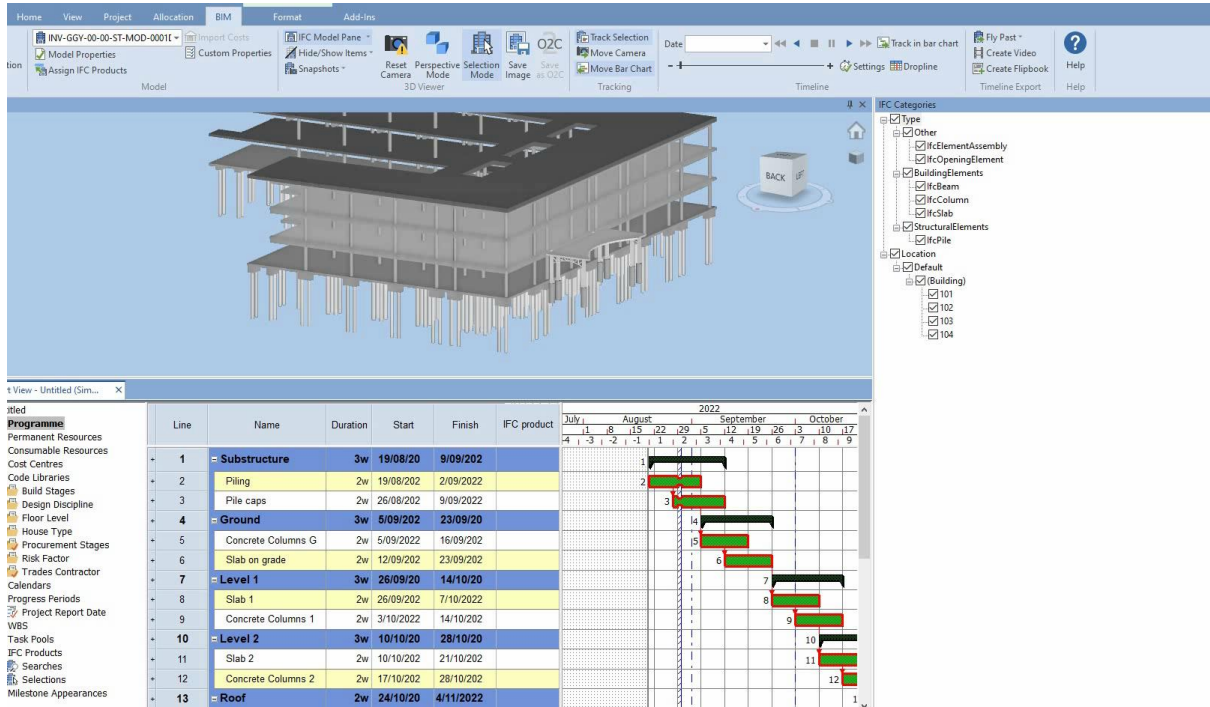

OpenBIM for Planning

How can we help meet Planners requirements for BIM



4D is Time Consuming



Solution: Auto-Linking

Synchro 4D Pro: Linking 3D model to Program Resources to Tasks

The screenshot displays the Synchro 4D Pro software interface. The top menu bar includes 'Plan', 'Assign Resources', '3D', '4D Review', 'Project Controls', 'Reports', 'Windows', and 'Navigator'. The ribbon contains various tools for task management, scheduling, and resource assignment. The main workspace is divided into three panes:

- Task List (Gantt View):** A table showing task details. The visible tasks are:

Name	Duration	Start	Finish	C_PDS_Area	C_PDS_Code	C_PDS_Subzone	C_PDS_Zone	Ss_Uniclass Code
1 N... Ground Floor	10d	8:00 AM 2...	5:00 PM 5...					
2 N... Work Area 1	10d	8:00 AM 2...	5:00 PM 5...					
3 A... Concrete Columns G	10d	8:00 AM 2...	5:00 PM 5...	010	01_02_01...	02	01	Se_20_30_5_15
4 A... Slab on Grade	10d	8:00 AM 2...	5:00 PM 5...	010		02		
- 3D Properties:** A panel on the right side of the interface, currently empty.
- 3D Model View:** A 3D rendering of a building structure with a yellow roof and grey walls, showing the spatial layout of the tasks.

Asta Powerproject: Linking 3D model to Program Schedule from IFC Add On

The screenshot displays the Asta Powerproject interface. The top menu bar includes File, Home, View, Project, Allocation, BIM, Format, Add-Ins, and Style Options. The main window is divided into three panes:

- IFC Model:** A 3D perspective view of a multi-story building's structural frame, showing columns and slabs. A label 'FRONT' is visible on the right side of the model.
- IFC Properties (1 Product Selected):** A table on the right side of the model pane showing details for a selected concrete column.

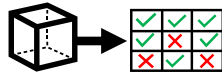
Property	Value
Details	
ID	48891eaa-9041-405b-a10f-f06585dfe
ParentID	
Domain	BuildingElements
IfcEntity	IfcColumn
IfcType	IfcColumnType
Name	M_Concrete-Round-Column:450mn
Description	
ObjectType	M_Concrete-Round-Column:450mn
PredefinedType	
Material	Concrete - Cast-in-Place Concrete -
Location	
Location	101
Site	Default
Building	
BuildingStorey	101
Space	
Miscellaneous	
SplitOrMerged	Neither
BuildOrder	0
BaseQuantities	
CrossSectionArea	2.63 m ²
NetVolume	0.56 m ³
Calculated Area	1.60 m ²
Calculated Volume	0.56 m ³
Contractor_Attributes	
Category	Structural Columns
- Library Explorer - Untitled (Sim...):** A tree view on the left showing project hierarchy: Programme, Permanent Resources, Consumable Resources, Cost Centres, Code Libraries, Calendars, Progress Periods, Project Report Date, WBS, Task Pools, IFC Products, Searches, Selections, and Milestone Appearances.
- Bar Chart View - Untitled (Sim...):** A Gantt chart at the bottom showing a project schedule with columns for Line, Name, Duration, Start, Finish, Task.PDS_Zone, Task.PDS_Subzone, Task.PDS_Area, and Task. The schedule includes:

Line	Name	Duration	Start	Finish	Task.PDS_Zone	Task.PDS_Subzone	Task.PDS_Area	Task
+ 11	round	15d	5/09/2022	23/09/2022				
+ 12	Work Area 1	15d	5/09/2022	23/09/2022				
+ 13	Concrete Columns G	2w	5/09/2022	16/09/2022	01	02	010	Ss_20
+ 14	Slab on grade	2w	12/09/2022	23/09/2022				
+ 15	Work Area 2	15d	5/09/2022	23/09/2022				
+ 16	Concrete Columns G	2w	5/09/2022	16/09/2022				
+ 17	Slab on grade	2w	12/09/2022	23/09/2022				
+ 18	Work Area 3	15d	5/09/2022	23/09/2022				

Modelling Requirements for Effective Planning

In order for a Planner to efficiently link tasks to BIM elements using the model attributes, they will require:

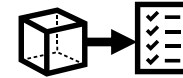
Design Conditioning
BIM Produced by Designers



Ensuring **metadata fields are correctly populated** based on the requirements for that stage of the project



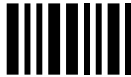
Models are using the correct **co-ordinates**



Ensuring **model quality** is in line with best practice.



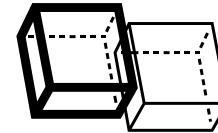
Contractor Conditioning
Adding Contractor Information to BIM



Assets defined at a level that can **correlate** with a program activity



Work areas and zones are able to be identified or defined (also through a PDS)



Element **geometry is split** in a way that aligns with the tasks.

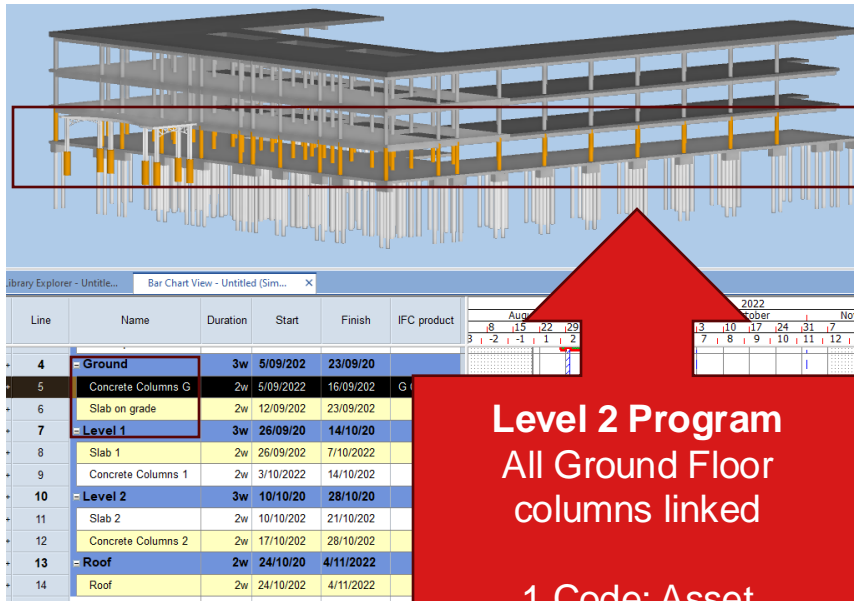
For example a building column in a multistorey building would not be modelled as one element through the entire building but split through each storey.



BCF

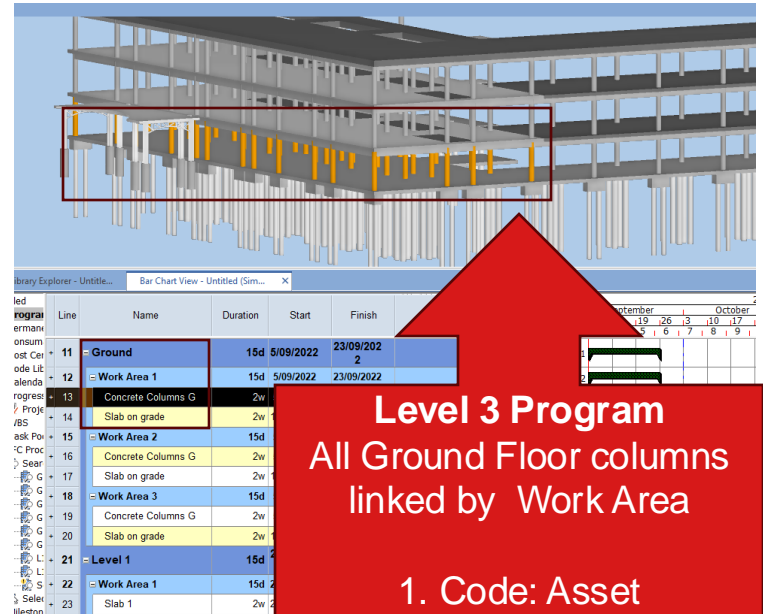
Linking 3D model to Program.

Each element must be integrated into the work breakdown of the program. The more levels of detail in the program, the more codes required for the element



Level 2 Program
All Ground Floor
columns linked

1. Code: Asset
2. Code: Location



Level 3 Program
All Ground Floor columns
linked by Work Area

1. Code: Asset
2. Code: Location
3. Code Work Area

Setting up for Integration

Location **Asset** **Work Area**

Line	Name	Duration	Start	Finish	Task Contractor Attributes - SC-3_Levels	Task.SS uniclass	Task.PDS_Area	IFC product
+ 11	- Ground	15d	5/09/2022	23/09/2022				
+ 12	- Work Area 1	15d	5/09/2022	23/09/2022				
+ 13	Concrete Columns G	2w	5/09/2022	16/09/2022	L01	Ss_20_30_75_15	010	G Columns Work Area 1
+ 14	Slab on grade	2w	12/09/2022	23/09/2022				G Slab Work Area 1
+ 15	- Work Area 2	15d	5/09/2022	23/09/2022				
+ 16	Concrete Columns G	2w	5/09/2022	16/09/2022				G Columns Work Area 2
+ 17	Slab on grade	2w	12/09/2022	23/09/2022				G Slab Work Area 2
+ 18	- Work Area 3	15d	5/09/2022	23/09/2022				
+ 19	Concrete Columns G	2w	5/09/2022	16/09/2022				G Columns Work Area 3
+ 20	Slab on grade	2w	12/09/2022	23/09/2022				G Slab Work Area 3
+ 21	- Level 1	15d	26/09/2022	14/10/2022				
+ 22	- Work Area 1	15d	26/09/2022	14/10/2022				
+ 23	Slab 1	2w	26/09/2022	7/10/2022				L1 Slab Work Area 1
+ 24	Concrete Columns 1	2w	3/10/2022	14/10/2022				L1 Columns Work Area 1

Asset

Work Area

Location

Codes are added to activities in the program

Property	Value
CrossSectionArea	2.63 m ²
NetVolume	0.56 m ³
Calculated Area	1.60 m ²
Calculated Volume	0.56 m ³
Contractor_Attributes	
Category	Structural Columns
Classification.Uniclass.EF.Description	Floors
Classification.Uniclass.EF.Number	EF_30_20
Classification.Uniclass.Pr.Description	Concrete solid slabs
Classification.Uniclass.Pr.Number	Pr_20_85_14_16
Classification.Uniclass.Ss.Description	Concrete column systems
Classification.Uniclass.Ss.Number	Ss_20_30_75_15
IfcExportAs	IfcColumn
IfcExportType	COLUMN
Category	Structural Columns
Classification.Uniclass.EF.Description	Floors
Classification.Uniclass.EF.Number	EF_30_20
Classification.Uniclass.Pr.Description	Concrete solid slabs
Classification.Uniclass.Pr.Number	Pr_20_85_14_16
Classification.Uniclass.Ss.Description	Concrete column systems
Classification.Uniclass.Ss.Number	Ss_20_30_75_15
Family	M_Concrete-Round-Column: 450mm
IfcExportAs	IfcColumn
IfcExportType	COLUMN
PDS_Area	010
PDS_Code	01_02_010_Ss_20_30_75_15
PDS_Subzone	02
PDS_Zone	01
Phase Created	New Construction
SC-1_Functions	02 PODIUM
SC-2_Elements	004 CL COLUMNS
SC-3_Levels	L01
SC-4_Headings	Concrete, Formwork, Reinforcement
Type	M_Concrete-Round-Column: 450mm

Corresponding Codes added to Elements in the Model

The information I need is in the drawings, not the 3D model



Solution: Make using model information easier

Auto 4D Tools: Generate Activity Scope

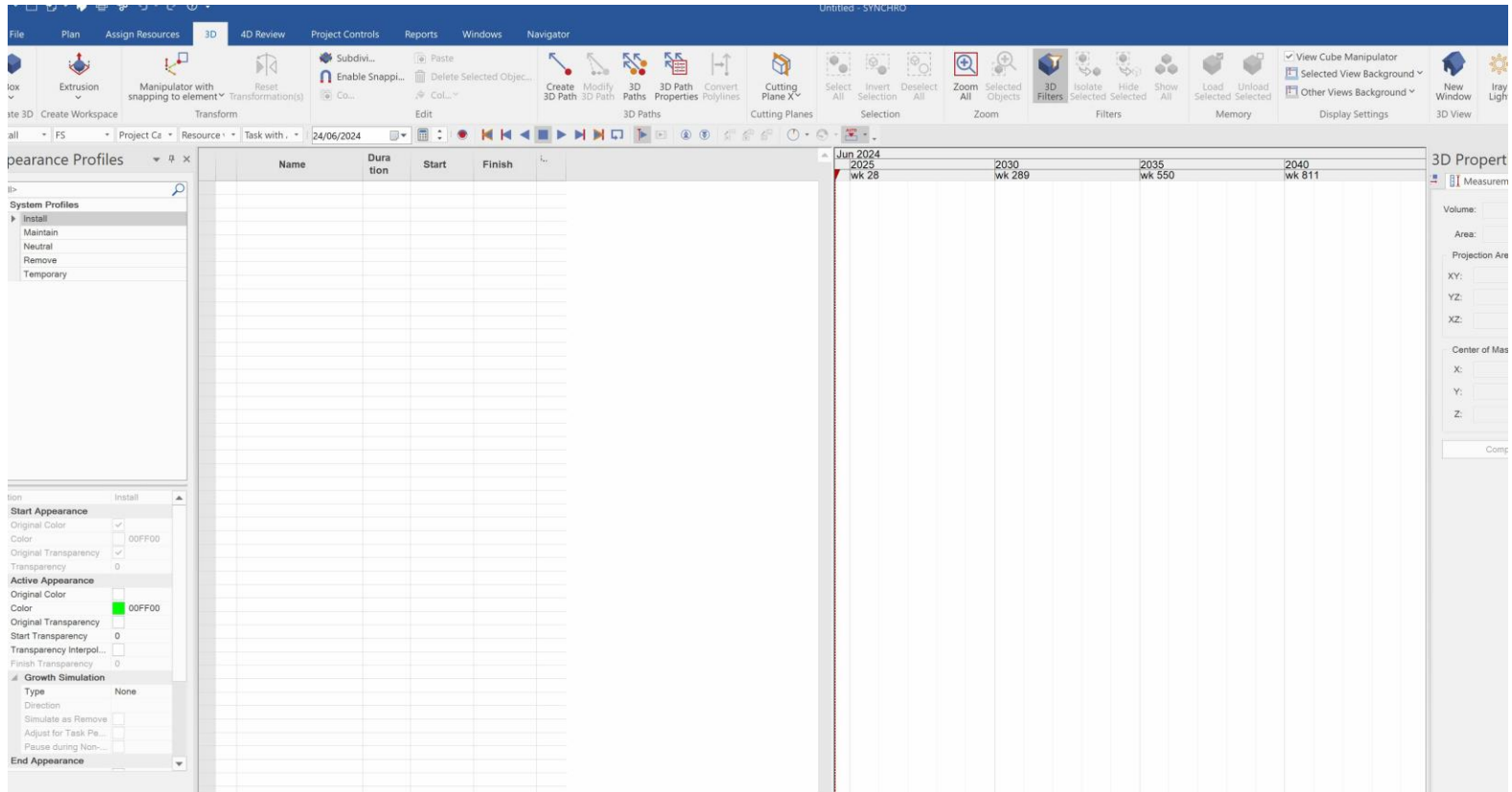
Asta Powerproject: *Schedule from IFC Add On*

The screenshot displays the Asta Powerproject interface. At the top, a menu bar includes File, Home, View, Project, Allocation, BIM, Format, and Add-Ins. The main workspace shows a 3D model of a building's structural frame. Below the model, a Gantt chart is visible, with one task highlighted in blue. The task is labeled '14 Roof' and has a duration of 10 days, starting on 24/10/2022 and finishing on 4/11/2022. The Gantt chart has several other rows that are currently empty or faded.

Line	Name	Duration	Start	Finish	IFC product area	IFC product volume	IFC product count	IFC Properties
14	Roof	10d	24/10/2022	4/11/2022				Property
								ID
								ParentID
								Domain
								IfcEntity
								IfcType
								Name
								Description
								ObjectType
								Predefine
								Material

Auto 4D Tools: Generate Activity Scope

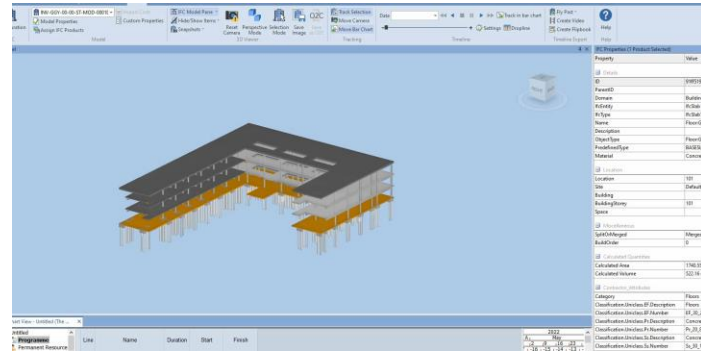
Bentley Synchro 4D Pro: Import Option *Create Tasks for Imported Resources*



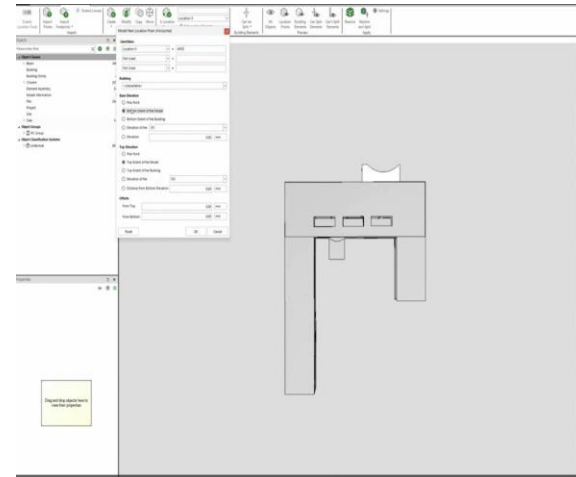
Synchro 4D Pro – Demo generating activities

Challenge: Work Area Zones and Geometry

What didn't work
Work area definition by
element contained to
downstream applications



What Worked
Work Area Definition Prisms
and Collaboration

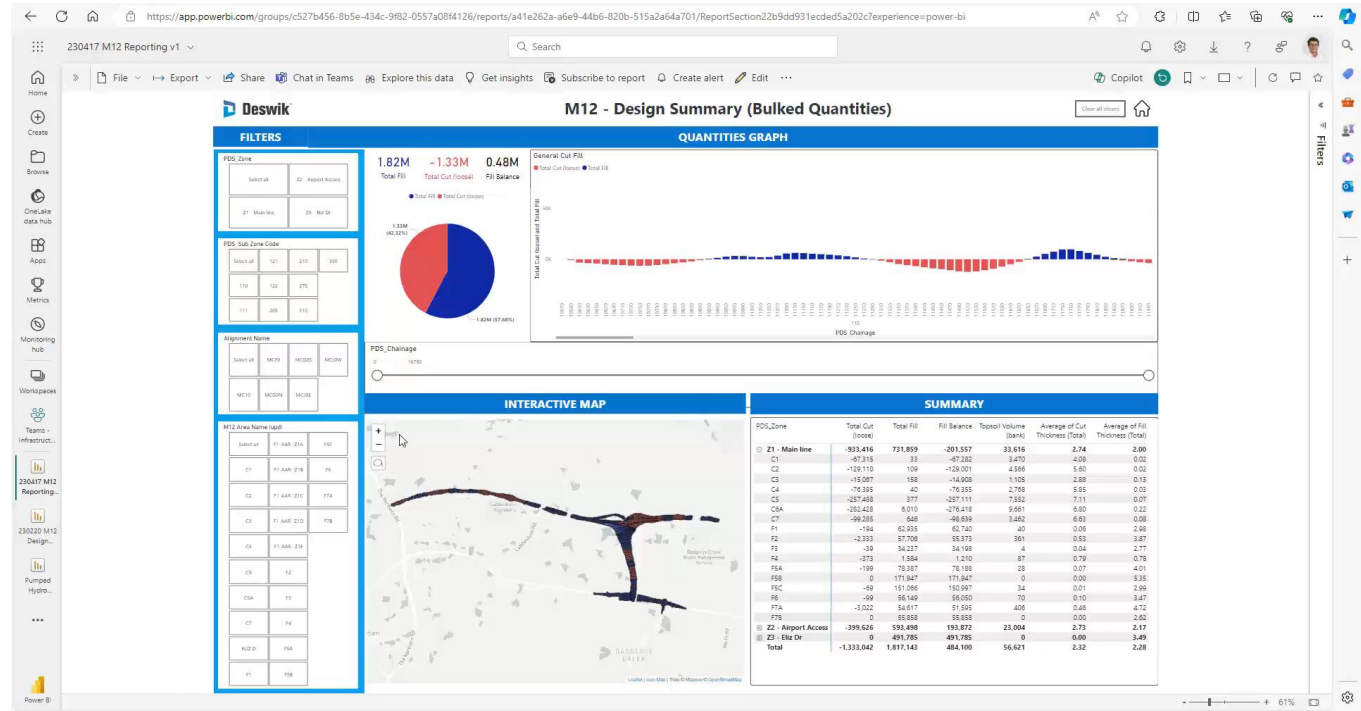


Extend it - 4D Earthworks and Reporting



Propeller Data is PDS coded by Location to enable comparisons between Actual and Planned rates

EIC Activities case study - Intelligent Earthworks (cimic.com.au)



Thank you

Fiona Becchio

Contact Info



Your Profile

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