



## Using Data Within BIM for FM Benefits



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**Director** – One Creative Environments Ltd



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# One Creative Environments Ltd:

- Architecture
- Building Services Engineering
- Structure and Civil Engineering
- Landscape Architecture
- Master planning
- Specialist BIM Deliverables



## BRE BIM Level 2 Business Systems Certification:

- Demonstrates the ability to meet BIM Level 2 requirements to PAS 1192-2:2013
- Removes the requirement for the employer to carry out a BIM capability assessment

bre



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## Data attribution within BIM for usable outputs:

With the AEC industry now becoming well versed with creating 3D geometry for construction projects, data use “for FM benefit” is understood to be where the majority of £ savings will come from ...

***But how many clear working examples do you ever get to see?***

What if you already have an existing CAFM system? What if you have no systems already in place?

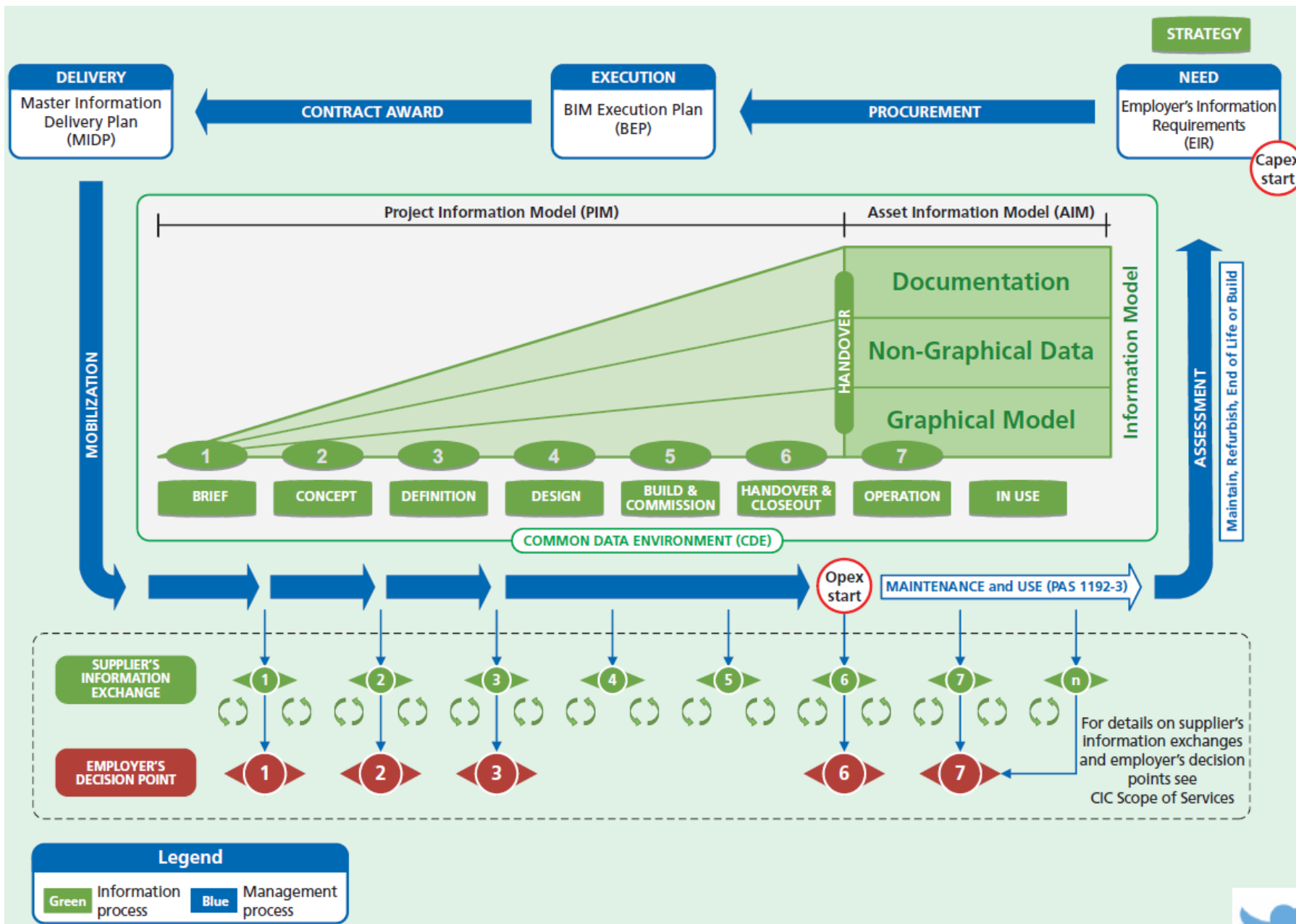
Do client's recognise the importance of the EIR?

**The EIR is the key to unlocking significant efficiency and savings.**



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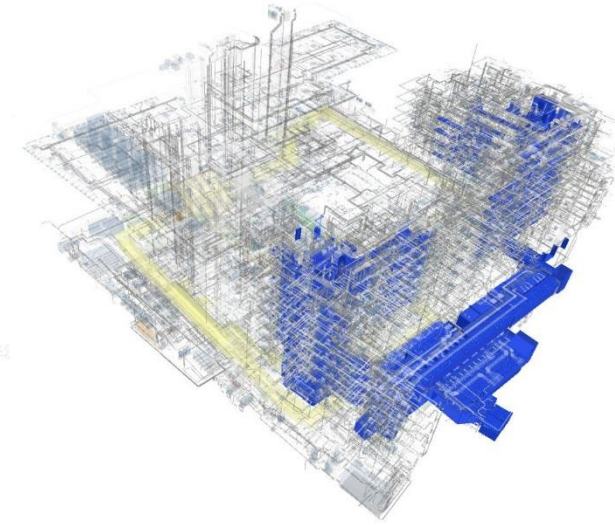
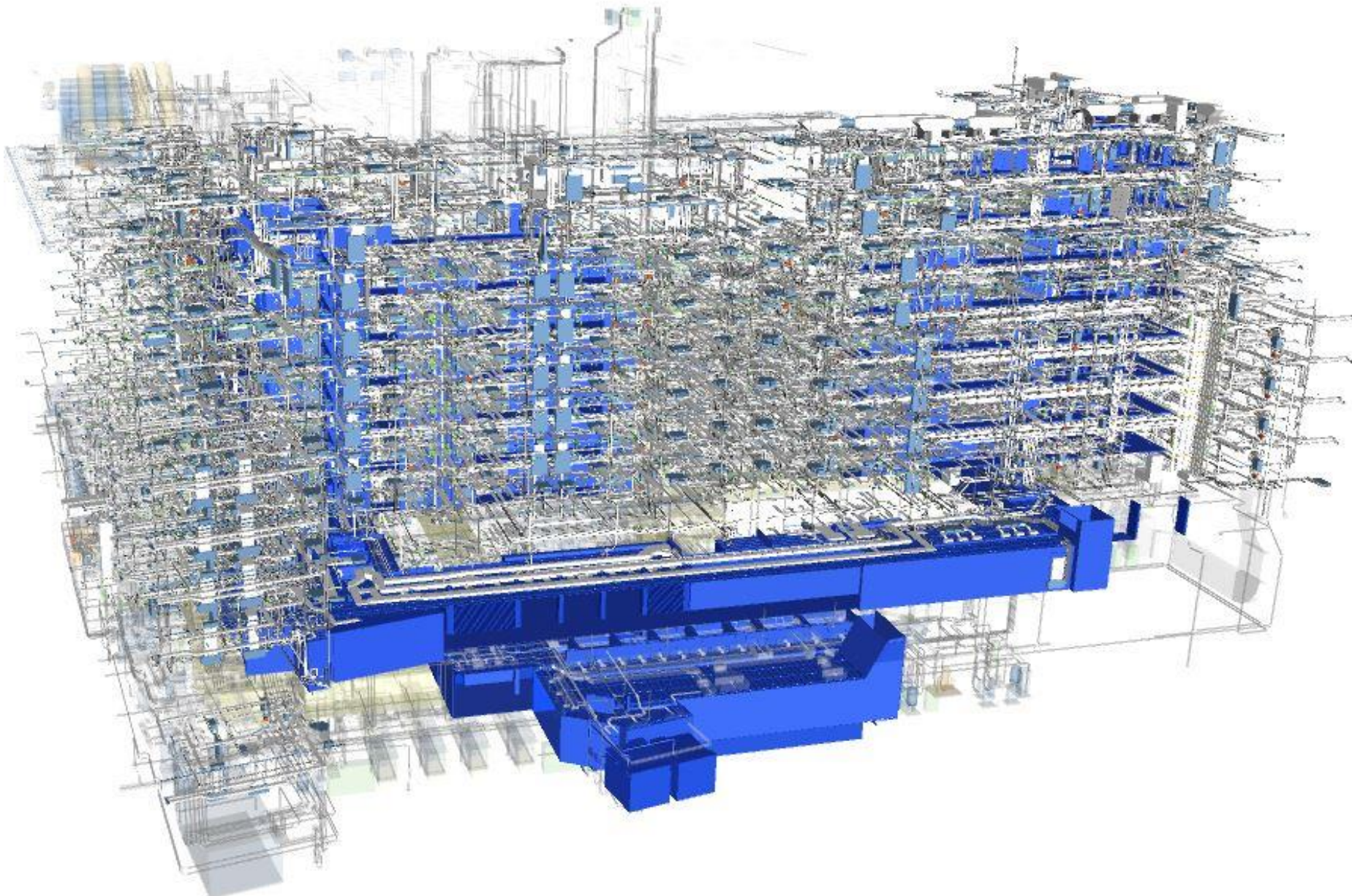


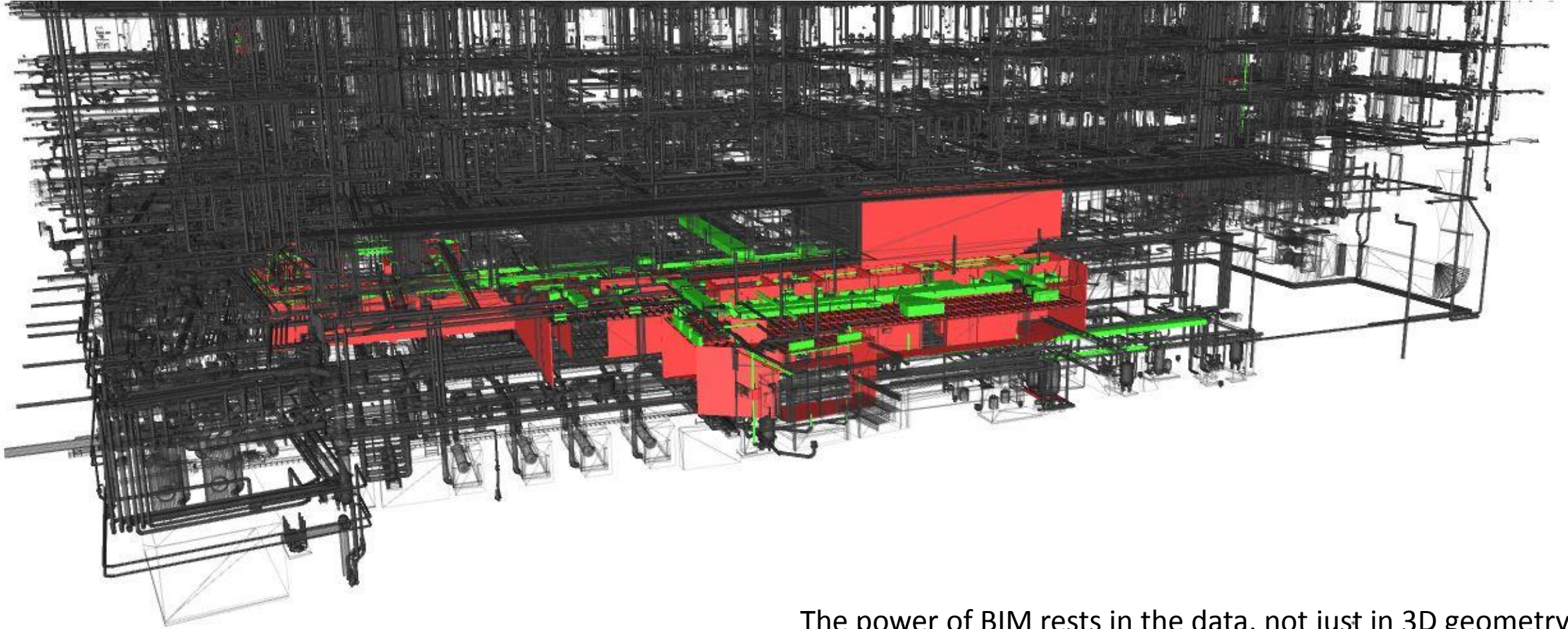
# Data attribution within BIM for usable outputs

Project: Rathbone Square, Oxford Street, London



Images courtesy of Great Portland Estates / MAKE / LendLease





The power of BIM rests in the data, not just in 3D geometry

Required	Ref	Field
All Objects	Req_01	Project
All Objects	Req_02	Locn - Building
All Objects	Req_03	Locn - Level
All Objects	Req_04	Locn - Zone
All Objects	Req_05	Locn - Space
All Objects	Req_06	Locn - Room
All Objects	Req_07	System
All Objects	Req_08	Type
All Objects	Req_09	Description
All Objects	Req_10	Number
All Objects	Req_11	LOD
All Objects	Req_12	Uniclass 1.4 Reference
All Objects	Req_13	Trade Contractor
All Objects	Req_14	Author
M&E Assets	Req_15	Asset Number
M&E Assets	Req_16	Manufacturer
M&E Assets	Req_17	Model Number

Family	Comment
Utility Equipment	
Fans	Supply & Extract (not AHU)
Air Handling Units	
Chillers	
Cooling Towers	
Boilers	
CHP	
Gas Boosters	
Storage Tanks - Water	
Storage Tanks - Oil	
Storage Tanks - Rain Waters	
Pumps	Solo/ twin, pkgd sets, Sprinklers etc
Pressurisation Units	
Plate Heat Exchangers	Chilled and Heating
De-aerators	
Dirt Separators	
DX Cooling Systems	
Meters - Gas	
Meters - Thermal	
Meters - Water	
Water Treatment Plant	Condition, Softeners, Chemical etc.
Heater Batteries	
Fire Dampers	
Motorised Dampers (MFSD)	
Fan Coil Units	
Radiators	
Door Curtain Heaters	
Pressure Vessels	Calorifiers, Buffer Vessels
Control Panels	
Motor Control Centres	
Alarm/ Monitoring Panels	Trace Heating, Leak Detection, Overflow, Gas Detections etc...
Sprinkler Zone Valves	
Sprinklers Zone Check Valves	
Head End Controllers / Graphic User Interfaces	
Variable Speed Drives	
Smoke Vent/ Controls Systems	
Notes	

Family	Comment
Utility Equipment	
Meters - Electricity	

Required	Ref	Field
All Objects	Req_01	Project
All Objects	Req_02	Locn - Building
All Objects	Req_03	Locn - Level
All Objects	Req_04	Locn - Zone
All Objects	Req_05	Locn - Space
All Objects	Req_06	Locn - Room
All Objects	Req_07	System
All Objects	Req_08	Type
All Objects	Req_09	Description
All Objects	Req_10	Number
All Objects	Req_11	LOD
All Objects	Req_12	Uniclass 1.4 Reference
All Objects	Req_13	Trade Contractor
All Objects	Req_14	Author
M&E Assets	Req_15	Asset Number
M&E Assets	Req_16	Manufacturer
M&E Assets	Req_17	Model Number

1. There are no assets included in "Behind Front Door" residential fit out



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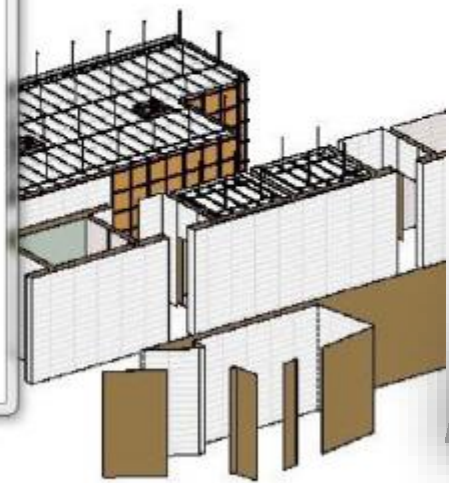
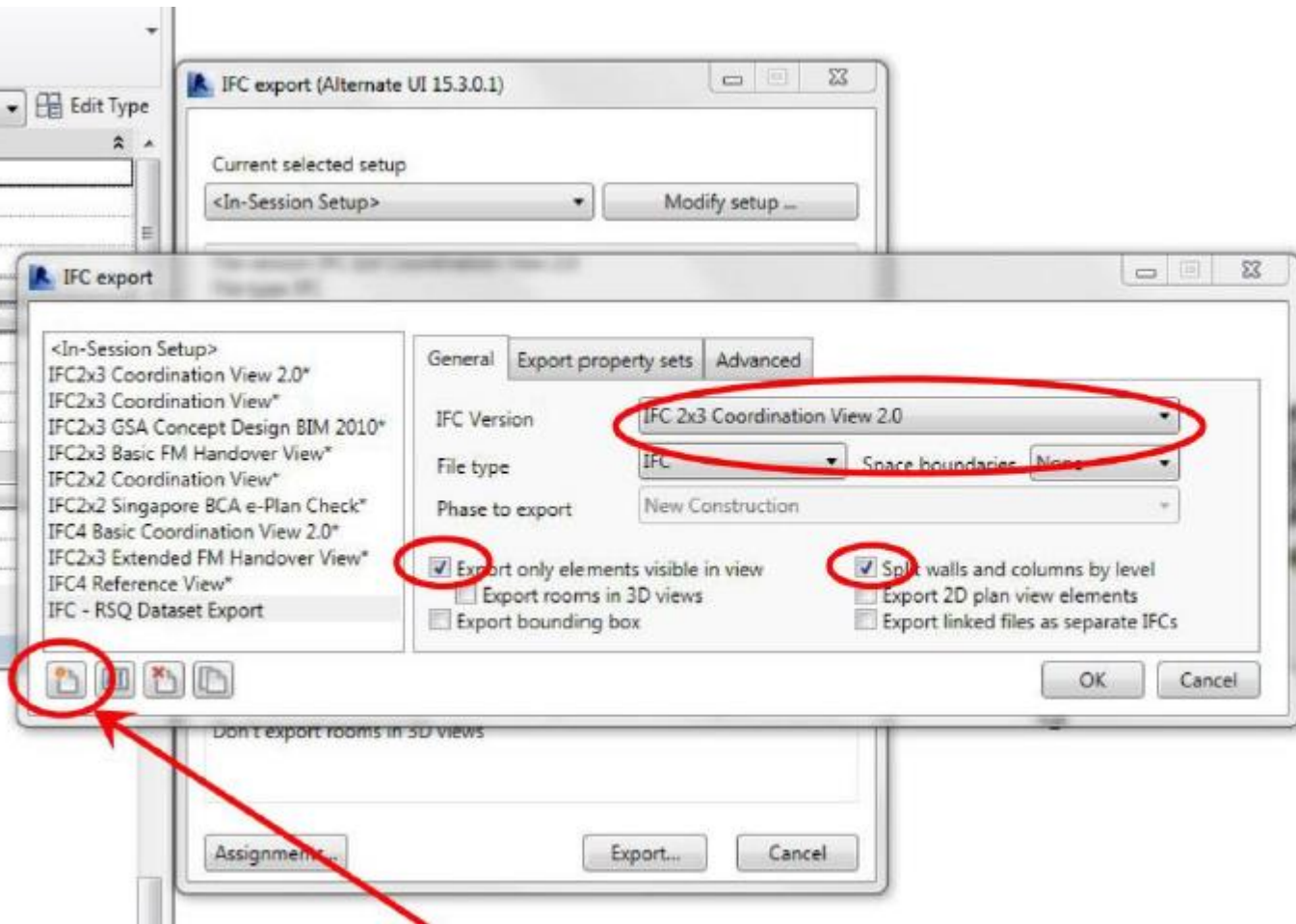


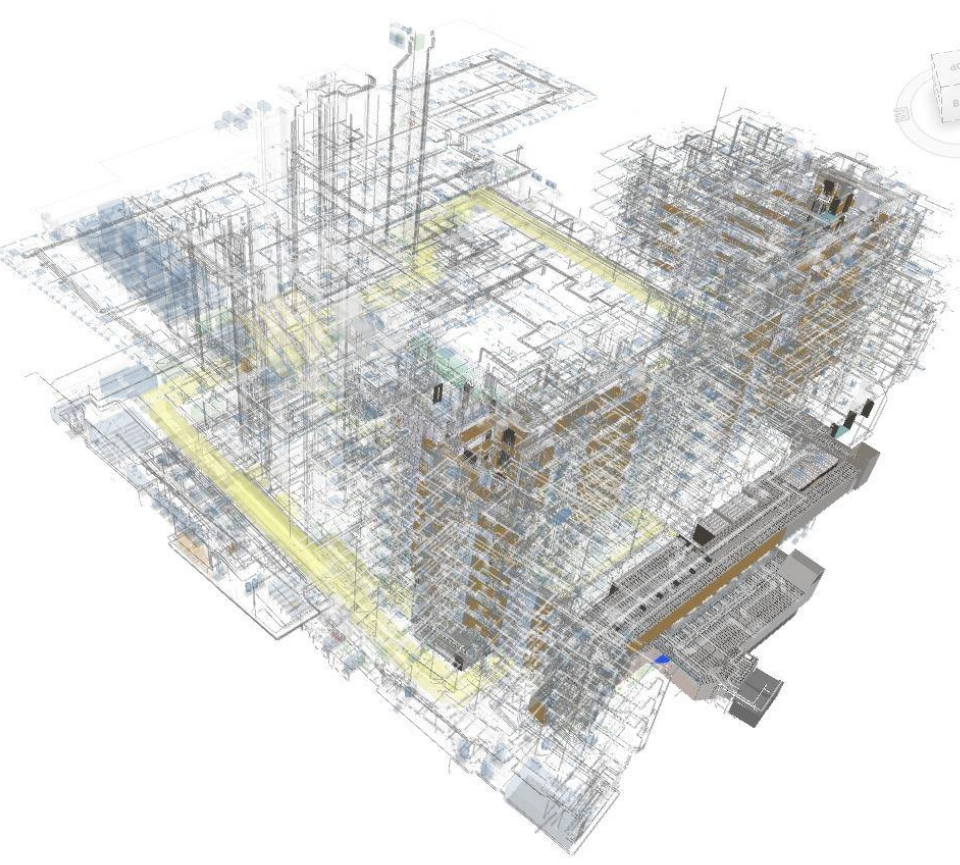
Each sub-contractor package will need to include elements connected with the following

Required	Ref	Field	Superstructure (\$2600)	Blockwork (\$2900)	Envelope (\$3540)	System Partitioning (\$3600)	Architectural Metalwork (\$4750)	Decorations (\$4800)	Back of House Fit Out (\$5060)	Signage (\$5700)	BMU (\$6930)	Mechanical & Public Health (\$6900)	Sprinklers (\$6500)	Building Management System (\$6900)	Commissioning Management (\$6950)	Electrical Installations (\$7000)	Lifts (\$7500)
All Objects	Req_01	Project	✓		✓						✓	✓	✓	✓		✓	✓
All Objects	Req_02	Locn - Building	✓		✓						✓	✓	✓	✓		✓	✓
All Objects	Req_03	Locn - Level	✓		✓						✓	✓	✓	✓		✓	✓
All Objects	Req_04	Locn – Zone	✓		✓						✓	✓	✓	✓		✓	✓
All Objects	Req_05	Locn – Space	No longer applicable as a separate field. Integrated within zone/ room classifications.														
All Objects	Req_06	Locn – Room	✓		✓						✓	✓	✓	✓		✓	✓
All Objects	Req_07	System	✓		✓						✓	✓	✓	✓		✓	✓
All Objects	Req_08	Type	No longer applicable as a separate field. Originally from CPB7 BEP this is part of the Asset Number at RSQ														
All Objects	Req_09	Description	✓		✓						✓	✓	✓	✓		✓	✓
All Objects	Req_10	Number	✓		✓						✓	✓	✓	✓		✓	✓
All Objects	Req_11	LOD	✓		✓						✓	✓	✓	✓		✓	✓
All Objects	Req_12	Uniclass 1.4 Reference	✓		✓						✓	✓	✓	✓		✓	✓
All Objects	Req_13	Package Number	✓		✓						✓	✓	✓	✓		✓	✓
All Objects	Req_14	Author	✓		✓						✓	✓	✓	✓		✓	✓
M&E Assets	Req_15	Asset Number									✓	✓	✓	✓		✓	✓
M&E Assets	Req_16	Manufacturer									✓	✓	✓	✓		✓	✓
M&E Assets	Req_17	Model Number									✓	✓	✓	✓		✓	✓



# We can use IFC to re-structure the Revit model's data for other uses:





Property	Value
GLOBALID	0pxW1_eNP50x5VgbrfB\$d
Req_01 - Project	RSQ
Req_02 - Locn - Building	Residential ABC
Req_03 - Locn - Level	LB1
Req_04 - Locn - Zone	Private Amenity LVB1
Req_05 - Locn - Space	No longer applicable
Req_06 - Locn - Room	S-B1-003
Req_07 - System	20-55-70
Req_08 - Type	No longer applicable
Req_09 - Description	FL-752 Porcelain Floor Tile - Domus Floor
Req_10 - Number	M40.1209
Req_11 - LOD	LOD 400 (LOMD5)
Req_12 - Uniclass 1.4 Reference	G333
Req_13 - Package Number	B5050
Req_14 - Author	Sherlock Interiors

Property	Value
GLOBALID	0pxW1_eNP50x5VgbrfB\$d
Req_01 - Project	RSQ
Req_02 - Locn - Building	Residential ABC
Req_03 - Locn - Level	LB1
Req_04 - Locn - Zone	Private Amenity LVB1
Req_05 - Locn - Space	No longer applicable
Req_06 - Locn - Room	S-B1-003
Req_07 - System	20-55-70
Req_08 - Type	No longer applicable
Req_09 - Description	FL-752 Porcelain Floor Tile - Domus Floortech DF...
Req_10 - Number	M40.1209
Req_11 - LOD	LOD 400 (LOMD5)
Req_12 - Uniclass 1.4 Reference	G333
Req_13 - Package Number	B5050
Req_14 - Author	Sherlock Interiors

Structured data assists when undertaking coordination meetings, running clash detection and filtering specific elements (e.g. for QTO).

## Using Classification codes within models: e.g.

- UNICLASS 2015
- NRM – New Rules of Measurement (RICS):
  - **NRM 1 - BUILDING WORKS QUANTS** - provides guidance on the quantification of building works for the purpose of preparing cost estimates and cost plans. It is the ‘cornerstone’ of good cost management of construction projects – enabling more effective and accurate cost advice to be given to clients and other project team members, as well as facilitating better cost control.
  - **NRM 2 – BoQ** - written mainly for the preparation of bills of quantities and quantified schedules of works, although the rules will be invaluable for designing and developing standard or bespoke schedules of rates.
  - **NRM 3 – MAINTENANCE WORKS** - gives guidance on the quantification and description of maintenance works for the purpose of preparing initial order of cost estimates. The rules also aid the procurement and cost control of maintenance works.



Uniclass Code	Group	Sub group	Section	Object	Title	NBS Code	NRM
Ss_15	15				Earthworks systems		
Ss_15_10	15	10			Groundworks and earthworks systems		
Ss_15_10_30	15	10	30		Excavating and filling systems		
Ss_15_10_30_25	15	10	30	25	Earthworks excavating systems	10-35-35/125 Earthworks excavating system;	0.4.2 Soil stabilisation measures; 0.1.1 Toxic or
Ss_15_10_30_27	15	10	30	27	Earthworks filling systems	10-35-35/127 Earthworks filling system;	1.1.4 Basement excavation; 1.1.5 Basement ret
Ss_15_10_30_29	15	10	30	29	Earthworks filling systems around trees	10-35-35/130 Earthworks filling system around trees;	4.1.7 Internal planting; 8.3.2 External planting (
Ss_15_10_30_31	15	10	30	31	Earthworks filling systems behind retaining walls	10-35-35/132 Earthworks filling system behind retaining walls;	1.1.5 Basement retaining walls (default); 8.4.3
Ss_15_10_30_65	15	10	30	65	Puddled clay lining systems	10-35-35/160 Puddled clay lining systems;	8.6.2 Ancillary drainage systems; 8.6.4 Land dra
Ss_15_10_30_90	15	10	30	90	Topsoil filling systems	10-35-35/185 Topsoil filling system;	4.1.7 Internal planting; 8.3.2 External planting (
Ss_15_10_33	15	10	33		Ground gas disposal systems		
Ss_15_10_33_34	15	10	33	34	Ground gas collection and venting systems	10-60-35/130 Ground gas collection and venting system;	0.4.3 Ground gas venting measures (default);
Ss_15_10_35	15	10	35		Ground remediation systems		
Ss_15_10_35_07	15	10	35	07	Bioremediation systems		
Ss_15_10_45	15	10	45		Landfill systems		
Ss_15_10_76	15	10	76		Site waste disposal systems		
Ss_15_10_76_21	15	10	76	21	Dewatering systems		
Ss_15_10_78	15	10	78		Slurry wall systems		
Ss_15_10_80	15	10	80		Stabilization systems		
Ss_15_10_80_33	15	10	80	33	Erosion control systems	10-35-35/135 Erosion control system;	0.4.2 Soil stabilisation measures (default); 8.3.
Ss_15_10_80_70	15	10	80	70	Rock bolting and dowelling systems	10-35-80/120 Rock bolting system;	
Ss_15_10_80_80	15	10	80	80	Soil nailing systems	10-35-85/110 Soil nailing system;	0.4.2 Soil stabilisation measures (default);

Using Classification codes within models:

BESA “SFG20” coding for PPM directly out of BIM



*SFG20 is the standard maintenance specification for building engineering services. (It is recognised as the industry standard and is an essential tool for planned maintenance).*



SFG20 and ONE:

Joint research project to improve the export workflow from Revit to SFG20



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## SFG20 Schedule code list (including HTM Alignment)

102	23-11	Fire Extinguishers - Powder (Gas Cartridge)
103	23-12	Fire Extinguishers - Water (Gas Cartridge)
104	23-13	Fire Extinguishers - Water (Gas Cartridge)
357	23-14	Sprinkler Systems
574	23-15	Gas Detection/Flammable
575	23-16	Kitchen Hood Fire Suppression
43582	23-17	Fire Doors
105	24-01	Flues (All Combustible Fuels)
106	25-01	Fountains Outdoor - Ornamental
584	25-02	Fountains Indoor - Ornamental
34549	25-03	Bottled Water Cooler
34562	25-04	Point of Use Water Dispenser
34563	25-05	Water Filter
107	26-01	Grilles and Diffusers
108	26-02	Louvres, Bird and Insect Screens
321	27-01	Introductory Procedures - Hazardous Areas (Electrics)
109	27-02	Hazardous Areas - Flameproof Equipment
110	27-03	Hazardous Areas - Lighting
111	27-04	Hazardous Areas - Earthing
112	28-01	Heat Emitters
113	28-02	Gas Fired Ceramic Plaque Infra-Red Heaters
114	28-03	Gas Radiant Tube Heaters
115	28-04	Gas Fired Natural and Fan Assisted Heaters - Conventional and Balanced Flue
602	28-05	Gas Fire
601	28-06	Gas Fired Unit Heaters
600	28-07	Gas Fired Radiant Heaters
43601	29-01	Radiators and Vents
116	29-02	Heat Exchangers - Coils
117	29-03	Electric/Air Heater
118	29-04	Plate Recuperator
119	29-05	Thermal Wheels - Rotary Heat Regenerators
120	29-06	Run Around Heat Recovery Coils
121	29-07	Plate Heat Exchangers
122	29-08	Water to Water Plate Heat Exchangers
617	29-09	Heating Calorifiers - MTHW, HTHW or Steam
43587	30-01	Heat Recovery Units
332	30-02	Introductory Procedures - Heat Rejection Systems
123	30-03	Cooling Towers - Precautions against Legionnaires Disease (Legionella Pneumophila)
124	30-04	Dry Coolers
624	31-01	Adiabatic Coolers
333	32-01	Introductory Procedures - Hot and Cold Water Services
334	32-02	Introductory Procedures - Hot Water Supply
125	32-03	Hot Water Services - General
365	32-04	Introductory Procedures - Calorifier Types
335	32-05	Pre-Maintenance Procedures - Calorifiers
126	32-06	Calorifiers Heated by LTHW
127	32-07	Hot Water Calorifiers - Heated by MTHW, HTHW or Steam
128	32-08	Hot Water Supply Calorifiers
129	32-09	Calorifier and Heat Exchange Controls
130	32-10	Hot Water Cylinders
131	32-11	Unvented Hot Water Systems
132	32-12	Thermal Storage Cylinder (Individual Dwellings for DHWS)
133	32-13	Expansion Vessels
134		Direct Fired Water Heaters

*“Best practices in building maintenance and operations (of heating, ventilation and air conditioning systems) can reduce energy use 10 to 20% across all climate zones. In contrast, poor maintenance practices can increase energy usage by 30 to 60%”.*



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Properties

3D View

3D View: 3D - Pool Plant Room

Graphics

View Scale	1 : 100
Scale Value 1:	100
Detail Level	Fine
Parts Visibility	Show Original
Visibility/Graphics Overrides	Edit...
Graphic Display Options	Edit...
Discipline	Architectural
Show Hidden Lines	By Discipline
Default Analysis Display Style	None
Sun Path	<input type="checkbox"/>

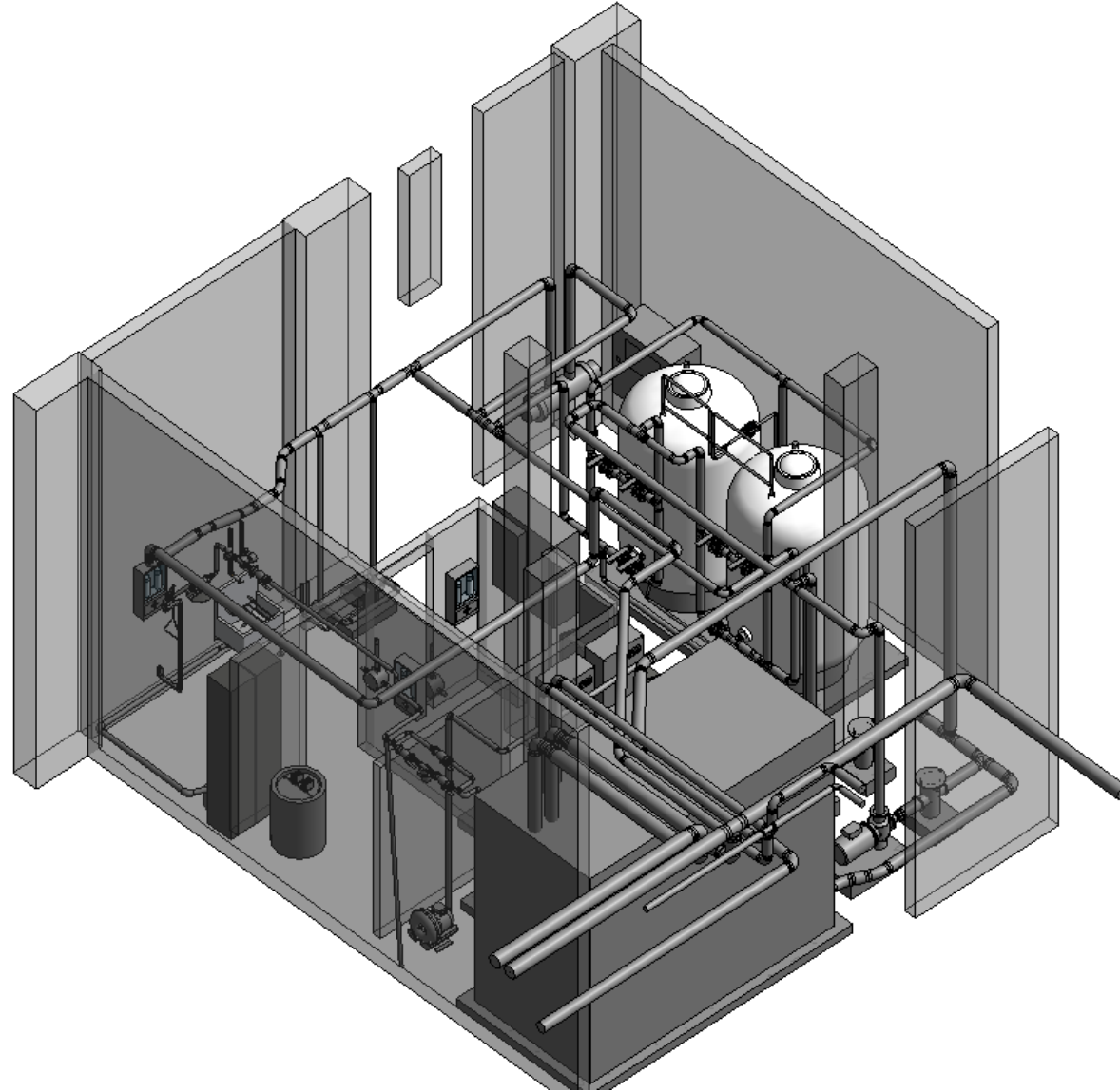
Extents

Crop View	<input type="checkbox"/>
Crop Region Visible	<input type="checkbox"/>
Annotation Crop	<input type="checkbox"/>

Apply

Project Browser - M3-2- Pool Plant Room Export (Amended)

- Views (all)
  - Floor Plans
    - Level 0
    - Level 1
    - M3-2- Pool Plant Room
    - Site
  - Ceiling Plans
  - 3D Views
    - 3D - Pool Plant Room**
  - Elevations (12mm Circle)
  - Legends
  - Schedules/Quantities
  - Sheets (all)
    - A100 - Unnamed
  - Families
  - Groups
  - Revit Links







**Properties**

RSQ B5050\_Olot Bobbin Filter\_Astral Swimming Pool Filter  
2.52 LPS

Mechanical Equipment (1) Edit Type

**Constraints**

Level	Level 0
Host	Level : Level 0
Offset	105.4

**Electrical - Loads**

Panel	
Circuit Number	

**Plumbing**

Pressure Drop	1970.00 Pa
Flow	2.52 L/s

**Mechanical**

System Classification	Hydronic Supply,Other
System Name	STEAM 2,STEAM 1,N2O 3,N...

**Identity Data**

Image	
Comments	
Mark	81181
M&E colour	

**Phasing**

Phase Created	New Construction
Phase Demolished	None

**Data**

Req_03 - Locn - Level	LB2
Req_04 - Locn - Zone	Swimming Pool
Req_06 - Locn - Room	Pool Plant Room
Req_17 - Model Number	TBC

**Other**

NBS	
NRM	

Properties help Apply

**Type Properties**

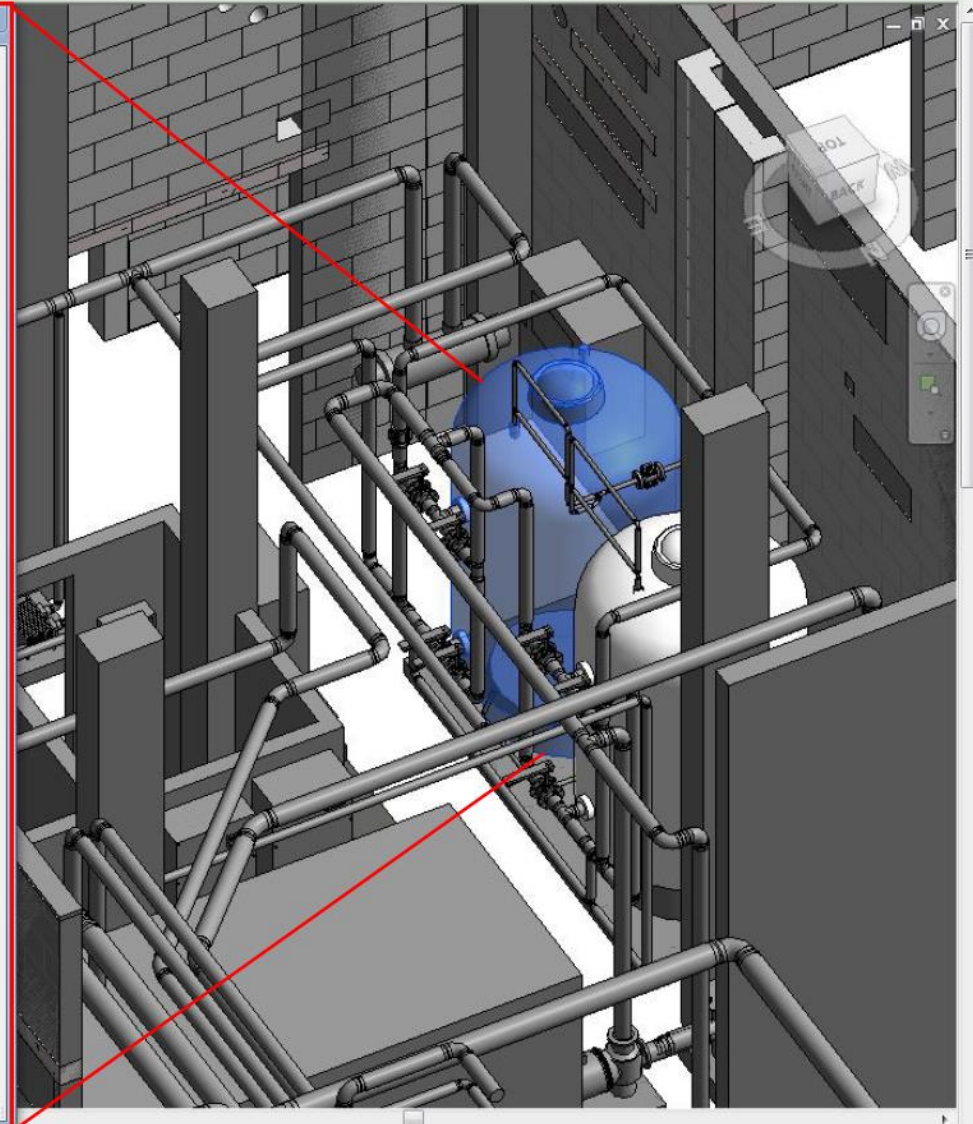
Family: RSQ B5050\_Olot Bobbin Filter\_Astral Swi Load...

Type: 2.52 LPS Duplicate... Rename...

**Type Parameters**

Parameter	Value
<b>Materials and Finishes</b>	
Filter Material	<By Category>
<b>Dimensions</b>	
Sand Filter Radius	240.0
Sand Filter Height	800.0
Sand Filter Diameter	480.0
Outlet Radius	25.0 mm
Outlet Diameter	50.0 mm
Inlet Radius	25.0 mm
Inlet Diameter	50.0 mm
Connector Height 2	520.0
Connector Height 1	380.0
<b>Identity Data</b>	
<b>Data</b>	
Req_18 - SFG 20	57-03 : Swimming Pools - Filters
Req_01 - Project	RSQ
Req_02 - Locn - Building	Residential ABC
Req_07 - System	55-40-80
Req_09 - Description	Main swimming pool sand filter ve
Req_10 - Number	TBC
Req_11 - LOD	LOD 400 (LOMD5)
Req_12 - Uniclass 1.4 Reference	L21711
Req_13 - Package Number	B5050
Req_14 - Author	Sherlock Interiors
Req_05 - Locn - Space	No longer applicable
Req_08 - Type	No longer applicable
Req_15 - Assesst Number	TBC
Req_16 - Manufacturer	Astral Oslo 05169
<b>Other</b>	
Radius 2	190.0

<< Preview OK Cancel Apply



## ONE & SFG20 Trial process outcome:

Using the IFC export workflow:



SFG20 successfully imported the sample model (via XBIM) and discovered 12 unique schedules and their mappings to assets / asset types (without manual remapping).

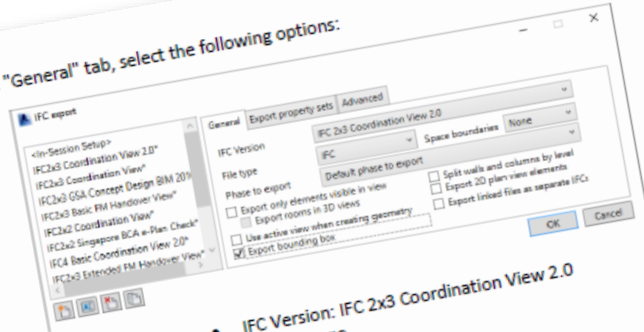
In total, there were 41 assets or asset types discovered with SFG20 schedule codes associated with them within the sample model.



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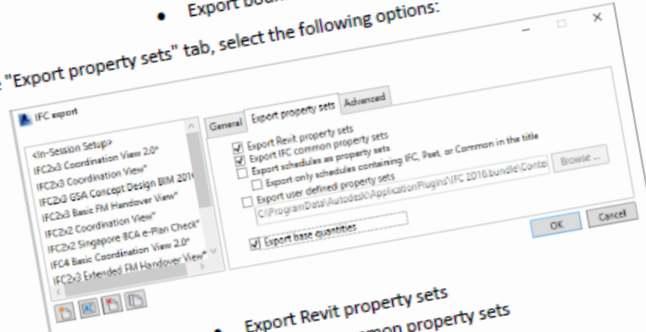


6. On the "General" tab, select the following options:



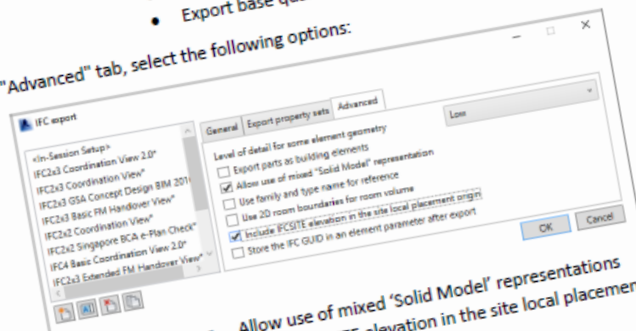
- IFC Version: IFC 2x3 Coordination View 2.0
- File type: IFC
- Export bounding box

7. On the "Export property sets" tab, select the following options:



- Export Revit property sets
- Export IFC common property sets
- Export base quantities

8. On the "Advanced" tab, select the following options:



- Allow use of mixed "Solid Model" representations
- Include IFC SITE elevation in the site local placement origin

9. Click "OK" to save settings.

Outcome:  
 SFG20 export workflow

(BESA SFG20 working with Northumbria University using the XBIM Platform)



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# One's sample model imported into SFG20:

SFG20

Navigation Panel

Search

Filter Schedules

Type Criticality Tags

Skill Set: All Skill Sets

Schedule Type: All Schedule Types

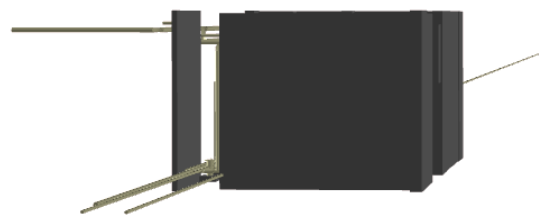
Schedule Selection & Customisation

Service Model Administration

Service Models (1)

- Project Number
- Schedules (12)
  - 14-01 : Introductory Procedures - Control Panels & Controllers
  - 20-01 : Introductory Procedures - Fans
  - 29-06 : Plate Heat Exchangers
  - 45-01 : Pumps - General
  - 51-01 : Showers
  - 56-01 : Introductory Procedures - Storage Tanks
  - 57-01 : Introductory Procedures - Swimming Pools
  - 57-03 : Swimming Pools - Filters
  - 57-04 : Swimming Pools - Pipework, Pumps, Heating etc
  - 62-03 : Butterfly and Ball Valves
  - 65-04 : Special Water Treatment Systems
  - 65-10 : Chemical Dosing
- Asset Management
  - Import BIM IFC
  - Auto Mapper
  - Manual Mapper
  - 3D Model
  - Basic Scheduler
  - Export Schedule Mapping
- Asset Types (43)
  - BuildingElementProxyType.1 2.52 LPS
    - Schedules (1)
      - 57-03 : Swimming Pools - Filters
    - Assets (2)
      - RSQ B5050\_Olot Bobbin Filter\_Astral Swimming Pool Filter:2.52 LPS:2

Model



Service Models (1)

- Project Number
- Schedules (12)
  - 14-01 : Introductory Procedures - Control Panels & Controllers
  - 20-01 : Introductory Procedures - Fans
  - 29-06 : Plate Heat Exchangers
  - 45-01 : Pumps - General
  - 51-01 : Showers
  - 56-01 : Introductory Procedures - Storage Tanks
  - 57-01 : Introductory Procedures - Swimming Pools
  - 57-03 : Swimming Pools - Filters
  - 57-04 : Swimming Pools - Pipework, Pumps, Heating etc
  - 62-03 : Butterfly and Ball Valves
  - 65-04 : Special Water Treatment Systems
  - 65-10 : Chemical Dosing
- Asset Management
  - Import BIM IFC
  - Auto Mapper
  - Manual Mapper
  - 3D Model
  - Basic Scheduler
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- Asset Types (43)
  - BuildingElementProxyType.1 2.52 LPS
    - Schedules (1)
      - 57-03 : Swimming Pools - Filters
    - Assets (2)
      - RSQ B5050\_Olot Bobbin Filter\_Astral Swimming Pool Filter:2.52 LPS:2

The screenshot displays the SFG20 web application interface. At the top, the browser address bar shows the URL `az-sfg20-app-dev.azurewebsites.net/#/app/xbimModel/7461`. The application header includes the SFG20 logo and navigation links: Home, Subscription, Technical Updates, Contact Us, Product Information, and ACCOUNT. Below the header, there are tabs for Navigation and Model. The left sidebar, titled 'Service Model Administration', contains a search bar and a tree view of the service model structure. The tree view shows a hierarchy starting with 'Service Models (3)', followed by 'New Service Model', 'Plant Room', and 'Schedules (10)'. Under 'Schedules (10)', there are sub-items like 'Asset Management', 'Basic Scheduler', and 'Export Schedule Mapping'. Below these are 'Asset Types (42)', which includes a list of 'BuildingElementProxyType' items with various descriptions such as 'NC170CP', 'unknown', '2.52 LPS', 'Alfa Laval M3 Floor Mounted Plate Heat Excha...', 'Aquaden Strainer Box', 'Circulation Pump (NEW)', 'Type 1', 'Drench Shower', 'Blaufish Aeration Fan', 'Upstand Pipe', 'Swimming Pool Balance Tank', 'Milton Roy Chemical Tank', 'Dosing Pump', and 'Workdesk'. The main content area on the right shows a 3D model of a complex industrial structure, possibly a heat exchanger or piping system, rendered in a light brown/gold color. A 'Help' button is visible on the right side of the 3D view. At the bottom of the interface, there is a 'Credits' section showing '10' and a code icon.

# Asset Profile (numbers displayed in brackets are Service Timings)

Search Asset Profile Schedule Code and Title



Type	Code	Title	Skill Set	UOM	Annual Timing	1W	1M	3M	6M	12M	0U
✘	SFG20	14-01	Introductory Procedures - Control Panels & Controllers		-	0					
✘	SFG20	20-01	Introductory Procedures - Fans		-	0					
✘	SFG20	29-06	Plate Heat Exchangers	M	Nr	20				■ (20)	
✘	SFG20	45-01	Pumps - General	E / M	Nr	35			■ (10)	■ (15)	
✘	SFG20	51-01	Showers	AA / M	Nr	60		■ (15)			■
✘	SFG20	56-01	Introductory Procedures - Storage Tanks		-	0					
✘	SFG20	57-01	Introductory Procedures - Swimming Pools		-	0					
✘	SFG20	57-03	Swimming Pools - Filters	M / SP	Nr	760	■ (10)	■ (15)			■ (60)
✘	SFG20	57-04	Swimming Pools - Pipework, Pumps, Heating etc	M / SP	Nr	1160	■ (5)	■ (5)	■ (45)	■ (90)	■ (480)
✘	SFG20	62-03	Butterfly and Ball Valves	M	Nr	6					■ (6)
✘	SFG20	65-04	Special Water Treatment Systems	SP	-	0					■
✘	SFG20	65-10	Chemical Dosing	M	Nr	360		■ (15)	■ (15)	■ (30)	■ (60)

Total Annual Timing (mins): 2401

Total Schedules: 12

**KEY:** statutory (red), function critical (amber), discretionary (green), Risk Assessed (grey).

This Asset Profile from our sample model shows there is “1 man-week” worth of maintenance duties per annum, split between a variety of skillsets.



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## Schedule Title : Chemical Dosing

Schedule Ref : 65-10

Schedule Type : Core

Schedule Date : 11 Apr 2017

Schedule Version : 2.0.0-2018

Unit of Measure : Nr

### TASK FREQUENCIES (SERVICE TIMINGS)

1M (15 mins)	3M (15 mins)	6M (30 mins)	12M (60 mins)
13 16 20	2 21	3 4 5 6 7 9 14 17	10 11 18 22

### ANNUAL TIMING (MINUTES)

360

### SCHEDULE INTRODUCTIONS

Regular dosing of treated water may be carried out manually or automatically on a discrete or continuous basis. Certain maintenance operations are common for all types of chemical dosing but specific requirements may apply to individual treatments such as:

- Chlorination
- Bromination
- Oxygen scavenging, corrosion and scale inhibitors
- Phosphate dosing
- Biocides.

In all cases refer to the manufacturer's instructions. Care should be taken in the storage, handling, disposal of all chemicals; COSHH Regulations apply.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the

Task	Skill Set	Action	Skill Set
6 Dosing	GM	If required, manipulate valves to ensure correct dosing of the system.	COSHH Regulations
7 Water sample (flat)	GM	Take and check system water conditions.	Mechanical
8 Dosing Pits - Automatic Operation	GM	Strip down, clean and reassemble. Check dosing rate.	Mechanical
9 Refill storage vessels	TM	Empty, clean and check for corrosion. Repair or replace as necessary.	Mechanical
10 Disposable Storage Vessels	TM	Check level.	Mechanical
11 Probes	TM	Isolate, remove and clean.	Mechanical
12 Conductivity/Orpahn Probes	TM	Replace as appropriate. Frequency to be agreed with client.	Mechanical
13 Other sensing and flow rate control devices	GM	Isolate, remove and clean.	Mechanical
14 Chemical Feed Units	GM	Ensure that the chemical in the storage drum is topped up to the full level and that there are adequate supplies in stock. Ensure that the injector line is not blocked. Check all pipework connections for signs of leakage. Test operation of all valves associated with the unit and ensure that all valves are returned to their original position of build up of scale, should this be evident it will be necessary to clean with a suitable brittle material when undertaking this exercise. Test operation of agitator. Test operation of level sensor.	Mechanical
15 Monthly inspection	TM	Ensure that the chemical in the storage drum is topped up to the full level and that there are adequate supplies in stock. Ensure that the injector line is not blocked. Check all pipework connections for signs of leakage. Test operation of all valves associated with the unit and ensure that all valves are returned to their original position of build up of scale, should this be evident it will be necessary to clean with a suitable brittle material when undertaking this exercise. Test operation of agitator. Test operation of level sensor.	Mechanical
16 Six Monthly	GM	Maintain in accordance with manufacturer's instructions.	Mechanical
17	GM		MIE



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# Data attribution within BIM for usable outputs

## Summary:

- PPM Schedules – Our pilot project examples show what can be achieved using a simple code attribution (such as SFG20).
- The **EIR** is a key document for defining Information Requirements on projects, ensure they are clear, concise, practical and easily understandable.



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# Data attribution within BIM for usable outputs

We do not need to wait till the end of the project to inform a client how much their assets will cost to maintain!



The 'Asset Profile' interface shows a table of asset details. The table includes columns for Name, Code, Title, Skill Set, UOM, Annual Timing, and various cost-related metrics. The data is as follows:

Name	Code	Title	Skill Set	UOM	Annual Timing	Y16	Y16	Y16	Y16	Y16	Y16
SFG20	14-01	Introductory Procedures - Control Panels & Controllers	M	Nr	20						
SFG20	20-01	Introductory Procedures - Fans	E / M	Nr	35						
SFG20	29-06	Plate Heat Exchangers	AA / M	Nr	60						
SFG20	45-01	Pumps - General	-	-	0						
SFG20	51-01	Showers	M / SP	Nr	760						
SFG20	56-01	Introductory Procedures - Swimming Pools	M / SP	Nr	1160						
SFG20	57-01	Swimming Pools - Filters	M	Nr	6						
SFG20	57-03	Swimming Pools - Pipework, Pumps, Heating etc	SP	-	0						
SFG20	57-04	Swimming Pools - Butterfly and Ball Valves	M	Nr	360						
SFG20	62-03	Special Water Treatment Systems	-	-	0						
SFG20	65-04	Chemical Dosing	-	-	0						
SFG20	65-10	Chemical Dosing	-	-	0						

Total Schedules: 12  
 Total Annual Timing (mins): 2401



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## SFG20 Design Stage uses:

### Design stage SFG20 maintenance assessment?

Accountability for ongoing FM costs:

- Allows feedback for the users based upon anticipated ongoing maintenance costs (encourages more early engagement)
- Verification of client budget / approval
- More depth for “V.E.” to establish true value (Op-Ex vs Cap-Ex)
- Comparison of ‘in-use’ costs vs the intended design costs



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Thankyou



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