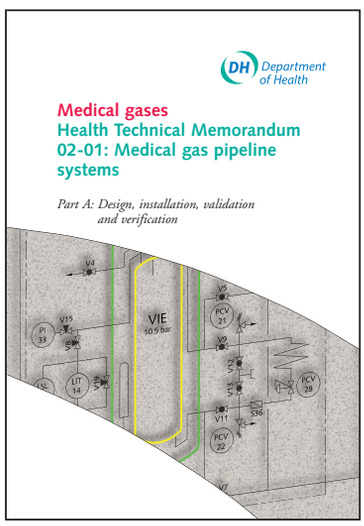
AS-FITTED DRAWINGS & DESIGN SERVICES

As-fitted Drawings & Design Services

PRODUCT SPECIFICATION

Description

BeaconMedaes have an internal team of design engineers capable of producing highly accurate Medical Gas Pipeline System (MGPS) design and layout drawings. Our team are AP trained and highly experienced in working with Health Technical Memorandum 02-01 (HTM02-01): Medical Gas Pipeline Systems - Part A Design, installation, validation and verification.



DesignSafeCover

BeaconMedaes' new unique DesignSafeCover (DSC) takes the compliance risk away from consultants and customers. Come to BeaconMedaes for MGPS designs and installation, and the company will guarantee that not only is design completed in line with HTM 02-01 guidelines, but that it will work as specified for the life of the system.

One of the ways BeaconMedaes is able to guarantee this is through use of detailed BIM level 2 models and 3D design. Our in-house design support team run calculations through software to ensure accuracy at every stage of the planning. In other words, because BeaconMedaes knows the designs are right, it can guarantee that the installation is too.

BIM Models

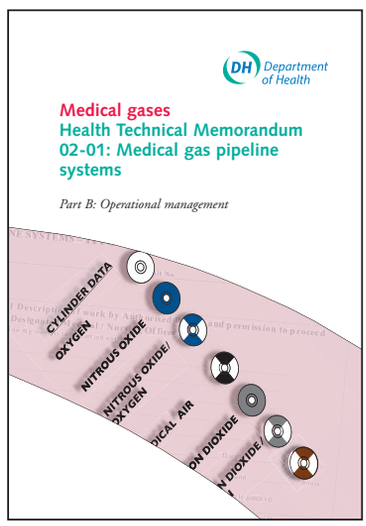
All BeaconMedaes manufactured equipment include Building Information Models (BIM), detailed to level 2 requirements. These 3D models include data specifications making them suitable for detailed room layout drawings, as well as full integration and coordination with building infrastructure models and other services.

Benefits include:

- Fast and efficient drawing service
- Reduced risk of expensive remedial works
- Quicker installation & increased productivity
- Less errors and easier hand over to installation teams

As Fitted Drawings & Surveys

Health Technical Memorandum 02-01: Medical gas pipeline systems, Part B: Operational management states that estate departments should have accurate up-to-date drawings of the MGPS showing main sections and branches, departments served, control valves, terminal units and alarm systems for each medical gas service.



These drawings should be readily available on site for use by any Authorised Person (MGPS), and all Authorised Persons (MGPS) should know their location.

Note: Up-to-date drawings and records are required under the Pressure Systems Safety Regulations 2000.

When additions or alterations are to be made to existing installations BeaconMedaes will provide updated drawings indicating pipe work alterations etc. These drawings are provided as standard with any installation works undertaken by the company.

The Authorised Person (MGPS) should arrange for the master MGPS drawing to be updated. BeaconMedaes can also amend as-fitted drawings provided by the facility to then replace the original master drawing.

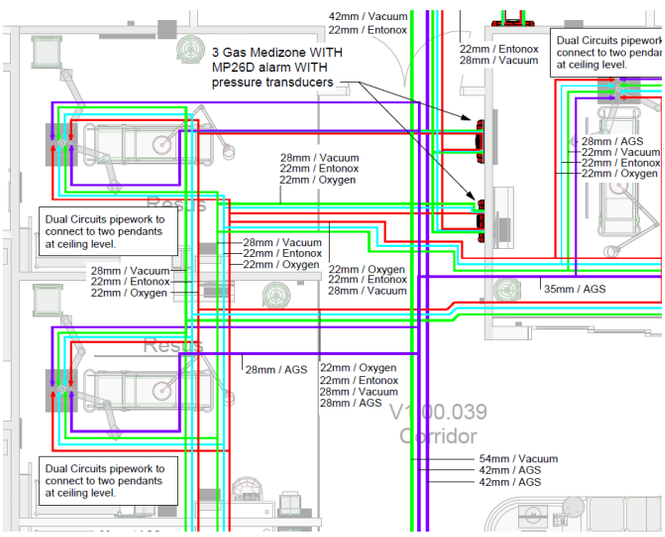
Once completed, all design and layout drawings can be uploaded and stored on our secure asset management and compliance portal, MyMedGas. On this portal, which provides a central location for storing medical gas pipeline records, these drawings can be accessed by the hospital at any time.

AS-FITTED DRAWINGS & DESIGN SERVICES

As-Fitted Plan Drawings

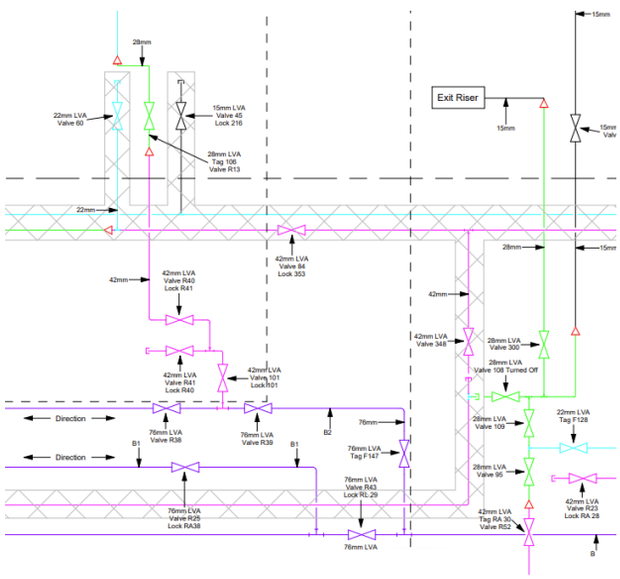
A plan layout drawing is a scaled drawing that shows the layout of a building or a room. It is a top-down view of the space, showing the location of walls, doors, windows and other architectural features - along with the services within those areas.

Drawings are offered in suitably scaled and bordered sheets inclusive of specific ISO19650 compliant drawing numbering. All pipe runs are identified showing pipe sizes and their routes with gas specific coloured pipelines for easy reference. Where required, to allow further clarity, additional views can be added e.g elevation views.



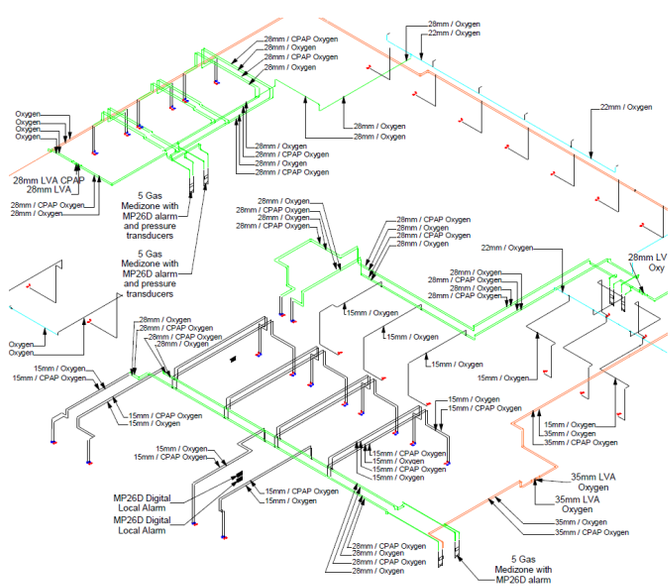
As-Fitted Schematic Drawings

A schematic drawing shows the layout of a medical gas pipeline system with a side on view. These drawings are used to illustrate and detail both the design and layout of the system to engineers, architects, and contractors. They also show details of valve positions and other equipment, which allow for the safe isolation of areas populated with piped medical gases systems. Drawings are suitably scaled and bordered sheets inclusive of specific ISO19650 compliant drawing numbering.



As-Fitted Isometric Drawings

An isometric drawing is a three-dimensional representation of pipeline sections that show the angles and bends in the pipeline. These drawings are particularly useful for understanding how the pipeline moves through space, which helps in planning inspections in complex or tight areas. Drawings are suitably scaled and bordered sheets inclusive of specific ISO19650 compliant drawing numbering. Typically, isometric drawings are shown as single gas type for clarity. Pipe sizes will be indicated along with tags. Additional specific coloured pipelines to reflect the pipe size will also be included.



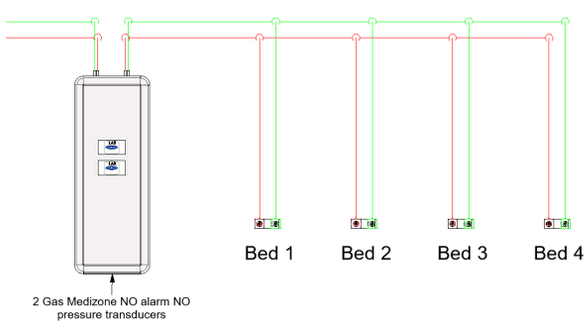
AS-FITTED DRAWINGS & DESIGN SERVICES

Isolation Valve Identification Drawings

Proper valve labelling and identification is crucial for ensuring safety and efficiency in any facility. Valves can cause significant damage if someone operates the wrong one. This risk can be reduced by using appropriate valve labelling and identification practices. BeaconMedaes offer the service of supplying and fitting new trafolite type valve tags as required. Whether that's upgrading the current tags or adding missing ones. When providing drawings, we can also display all valve tags for easy reference against the installed valves.

Localised Schematic Drawings for AVSU's

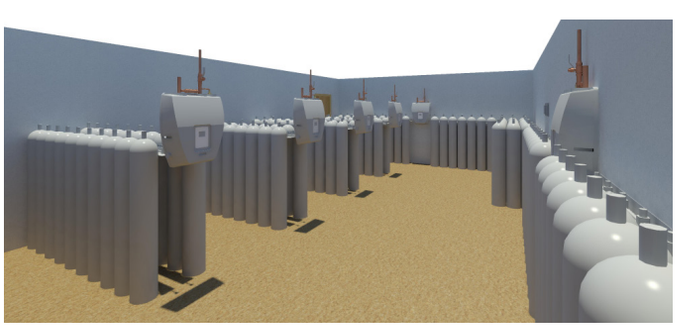
To allow easy reference to the isolation details related to local terminal units, a specific schematic fitted close to the AVSU sets are provided. A validation survey may be required in advance.



Plant & Manifold Room Layout Drawings

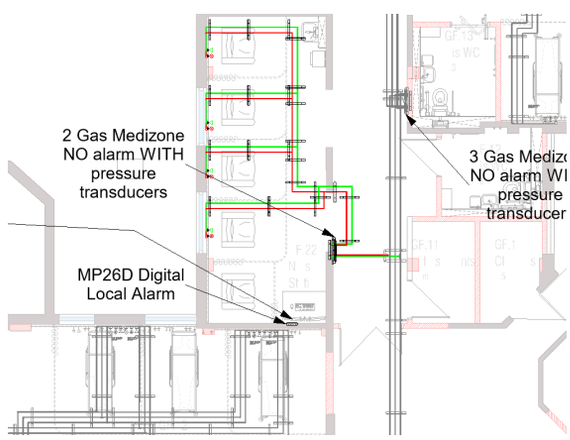
Our detailed and accurate BIM layout drawings enable us to place equipment in situ, and provide dimensions for maintenance and access around equipment. This means estates teams are confident that they will be able to work on equipment prior to installation, with no hidden problems.

Room layout drawings are provided with our commercial tenders.



Ongoing Drawing Updates (Contract)

As improvements to the piped medical gas systems are made through the life of the system, it can sometimes be difficult to keep as-fitted drawings up to date. This can lead to confusion and potential for unplanned isolation of services. BeaconMedaes can provide ongoing updates of the medical gas pipeline systems. This involves maintaining live drawings and adjusting to include any new installation works. Drawing updates will be re-issued and included within our MyMedGas - our online asset management system with 24/7 access by any approved employee. Meaning that, when the latest information is required, it is always available, correct and easy to access. All surveys, designs and drawings are completed by one of our certified in-house MGPS Authorised Person's.



Revit 3D Drawing Software

All MGPS entities are drawn using 3D Revit as standard. This offers the ability to provide unlimited views for clarity. All drawings can be exported to a preferred file format such as Autocad upon request.

Completed drawings will be issued, as standard, in pdf format and stored securely on our server for a period of 5 years. We also store all drawings within our MyMedGas online platform. If you are not currently a MyMedGas user, access can be granted upon request. Further information on MyMedGas can be found below:

MyMedGas allows you to manage your entire Medical Gas Pipeline Systems (MGPS). We connect all the details on compliance, assets tracing, equipment history, competence development and 24/7 support. Our easy to use digital platform includes features such as inventory asset management, monitoring of equipment, maintenance history, reports, compliance status and much more. Together with our nationwide service organisation you get full control of your MGPS, ultimately supporting your patients.

https://www.beaconmedaes.com/en-uk/mymedgas

MyMedGas™ By BeaconMedæs

AS-FITTED DRAWINGS & DESIGN SERVICES

Existing Systems Capacity Review

Over time, it's inevitable that changes to the facility and medical gas pipeline system will be made. This can include adding to, or reducing from, the original flow demand of the system and supply source equipment. It may not always be clear the effect this has had on pressure drops or system performance so a full review of the existing system can be required. Completing a capacity review includes running theoretical calculations of the existing systems, identifying expected pressure drops throughout and evaluating whether the existing medial air plant, vacuum plant or gas manifolds are sized correctly.

Once complete, a clear picture of the medical gas pipeline systems available capacity is available. BeaconMedaes can provide this service with information taken from either existing as-fitted drawings and supporting information or based on full validation survey.

Pressure Drop & Flow Calculations

BeaconMedaes have been producing pressure drop and flow calculations for well over 50 years. All calculations are produced in line with HTM02-01: Part A section 4 Gas Flow, and can be for pre or post installation work.

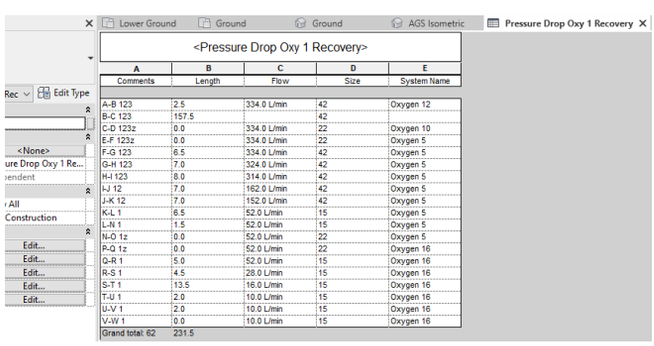


Table 13 Oxygen: design and diversified flows

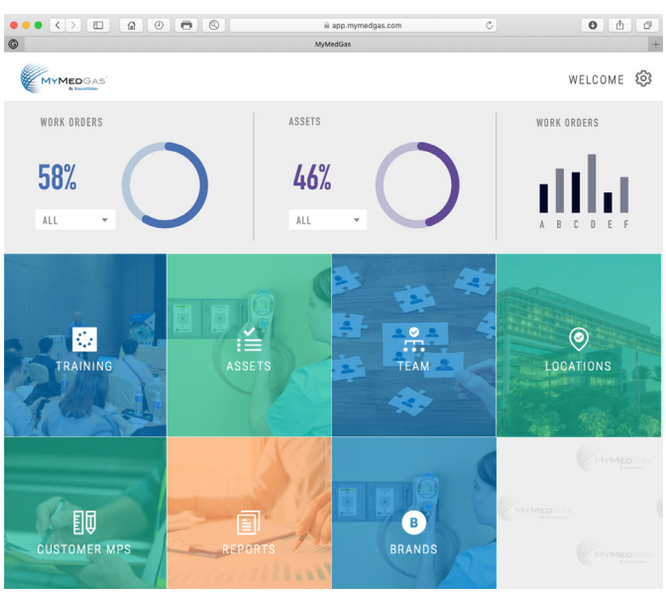
Department	Design flow for each terminal unit (L/min)	Diversified flow Q (L/min)
In-patient accommodation (ward units):		
Single 4-bed rooms and treatment room	10	$Q_w = 10 + [(n-1)6/4]$
Ward block/department	10	$Q_d = Q_w[1 + (nW-1)/2]$
Accident & emergency:		
Resuscitation room, per trolley space	100	$Q = 100 + [(n-1)6/4]$
Major treatment/plaster room, per trolley space	10	$Q = 10 + [(n-1)6/4]$
Post-anaesthesia recovery, per trolley space	10	$Q = 10 + [(n-1)6/8]$
Treatment room/cubicle	10	$Q = 10 + [(n-1)6/10]$
Operating:		
Anaesthetic rooms	100	Q = no addition made
Operating rooms	100	$Q = 100 + (nT-1)10$
Post-anaesthesia recovery		$Q = 10 + (n-1)6$
Maternity:		
LDRP rooms:		
Mother	10	$Q = 10 + [(n-1)6/4]$
Baby	10	$Q = 10 + [(n-1)3/2]$
Operating suites:		
Anaesthetist	100	$Q = 100 + (nS-1)6$
Paediatrician	10	$Q = 10 + (n-1)3$
Post-anaesthesia recovery	10	$Q = 10 + [(n-1)3/4]$
In-patient accommodation:		
Single/multi-bed wards	10	$Q = 10 + [(n-1)6/6]$
Nursery, per cot space	10	$Q = 10 + [(n-1)3/2]$
Special care baby unit	10	$Q = 10 + (n-1)6$

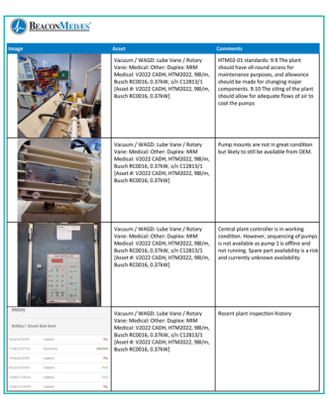
MGPS Compliance Audits

MyMedGas™ By BeaconMedæs

BeaconMedaes Authorised Person's (AP's) can attend site and provide a compliance and risk audit of your medical gas pipeline equipment. This equipment can be manufactured by any company - our time served and experienced team have seen equipment of all types over the years and can help you identify not only what is compliant, but what equipment have spare parts availability and which equipment ideally should be replaced due to life cycle.

All audits are produced using MyMedGas and are uploaded and stored on our Microsoft Azure platform for security and peace of mind. Photos can also be imported into our reports making them easy to interpret and understand.



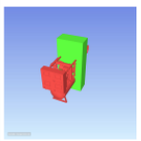


Coordinated Services Drawings

BIM coordination is a process of Building Information Modelling. It facilitates the collaboration between MEP engineering, structural engineering and architectural plans. It is an essential part of 3D BIM coordination that can locate issues between different designs and models, to work out the most efficient way to install or fix them.

This helps with solving many construction problems and is widely used on a regular basis. Medical gas pipeline systems are also an important part of the construction process, and BIM coordination can help ensure that these systems are properly integrated into the building design.

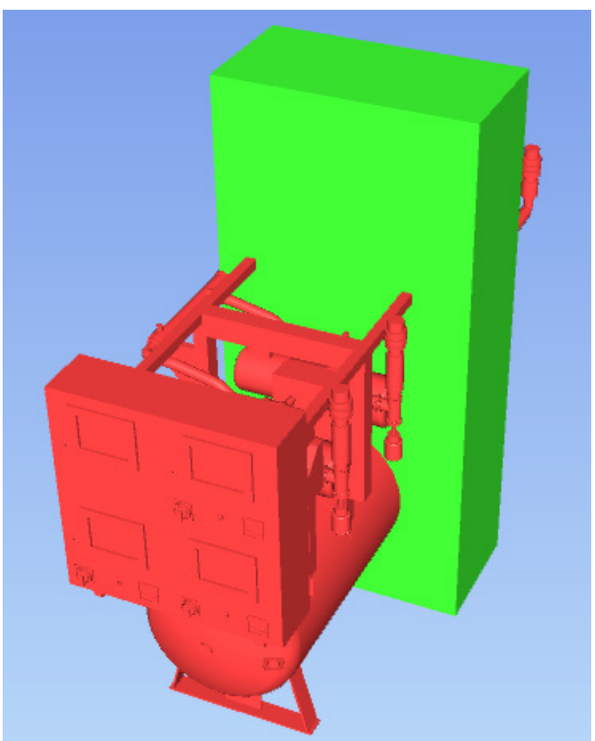
BeaconMedaes have the ability to offer full BIM coordination with other services and architecture, along with offering products with supported BIM Models.

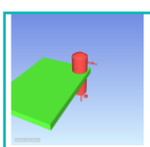


Name	Clash4
Distance	-0.188m
Description	Hard
Status	Approved
Clash Point	455121.243m, 324028.061m,
Grid Location	A3-B1 : Energy Centre
Date Created	2023/7/13 14:19
Date Approved	2023/7/13 14:19
Approved By	GBVPMT

Item 1

Element ID	4056639
Layer	Level 0
Item Name	mVAC-250-TH_8152130600





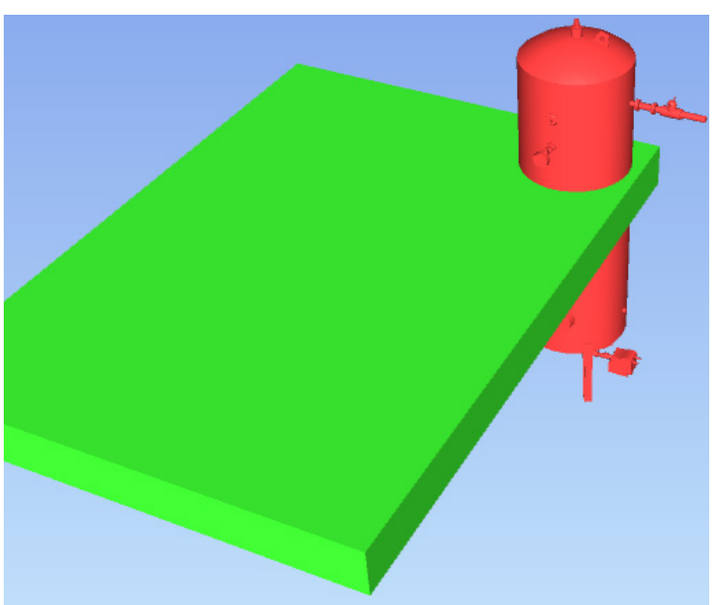
Name	Clash3
Distance	-0.261m
Description	Hard
Status	Approved
Clash Point	455125.144m, 324030.725m, 85.200m
Grid Location	A3-B1 : Energy Centre
Date Created	2023/7/13 14:19
Date Approved	2023/7/13 14:19
Approved By	GBVPMT

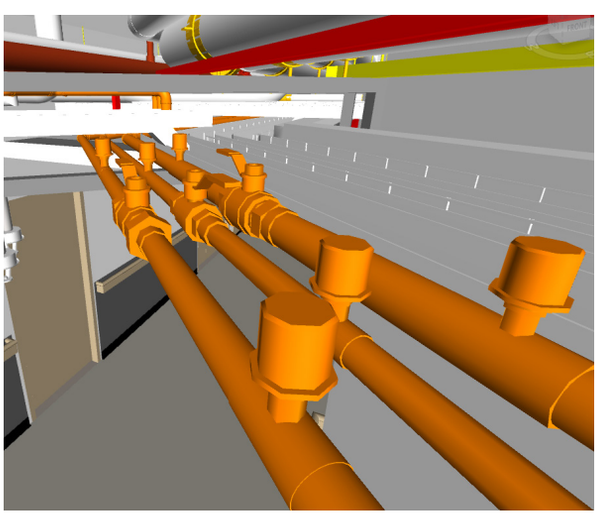
Item 1

Element ID	3919517
Layer	Level 0
Item Name	High Quality carbon steel
Item Type	Solid

Item 2

Element ID	7006704
Layer	00 - Energy Centre SSL
Item Name	Maintenance Zone
Item Type	Solid





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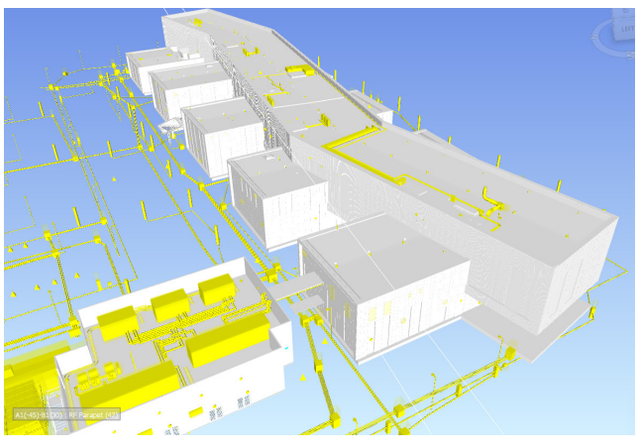
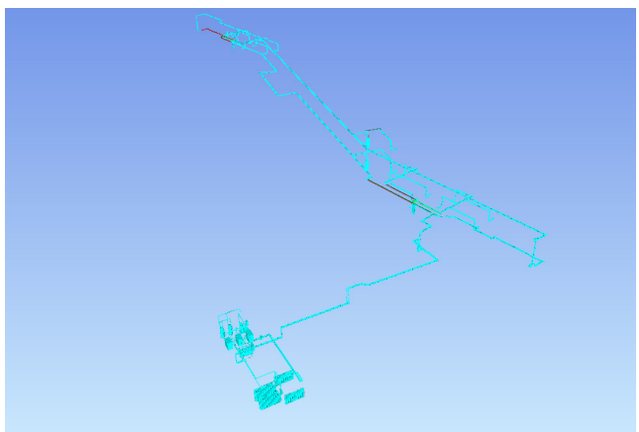
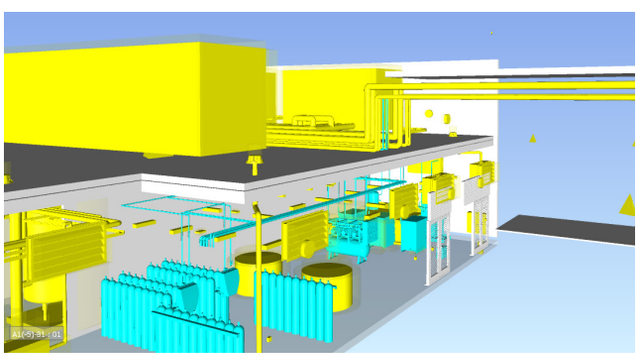
Pipe routes are highly accurate and take into account rises and falls where other services, such as air conditioning, are planned. This enables us to produce accurate bills of materials and reduce problems relating to logistics.

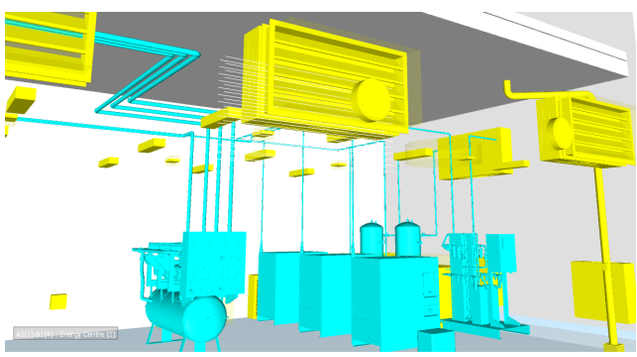
Our fitters are not left having to interpret busy 2D layout drawings which are not often accurate or do not detail obstacles or all the services installed. This means we know whatever pipe sizes we determine are needed to achieve the desired flow rates and pressure drop tolerances are installed in practice.

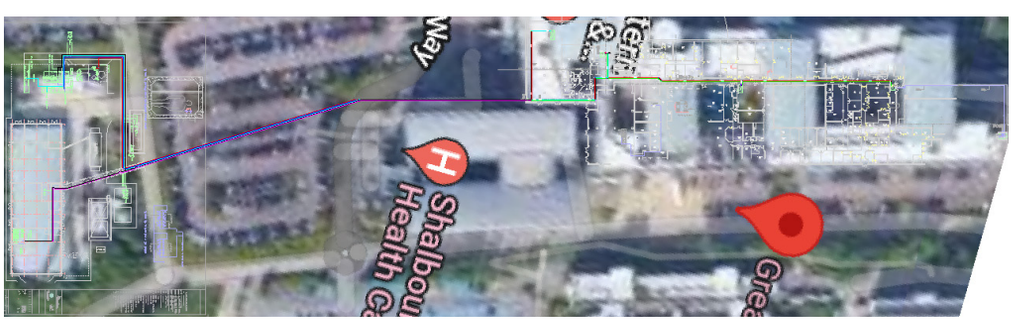
By working in this manner we can guarantee our design with our DesignSafeCover.











Example shows the overlaying of our as-fitted drawing over the top of an online map.

This was used to determine the length of pipe running underground and enabling the calculation of the associated pressure drop.

We could then determine what pressure losses were allowable within the new building, as the MGPS was supplied from the existing site.