brydenwood

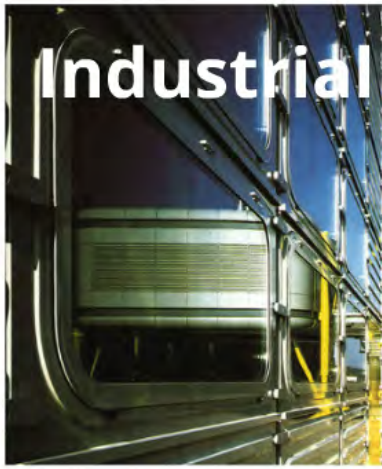
Advanced BIM & Lean

LCI-UK Summit
29 October 2015


Healthcare


Water
infrastructure


Education


Industrial


Residential


Rail


Aviation


Pharmaceutical


Commercial

0 Strategic Definition

1 Preparation and Brief

2 Concept Design

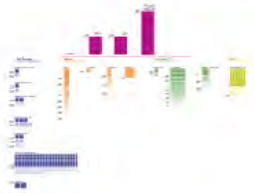
3 Developed Design

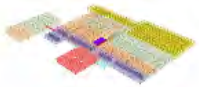
4 Technical Design

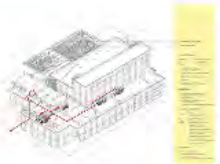
5 Construction

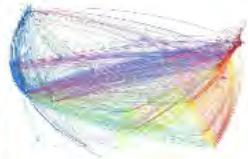
6 Handover and Close Out

7 In Use







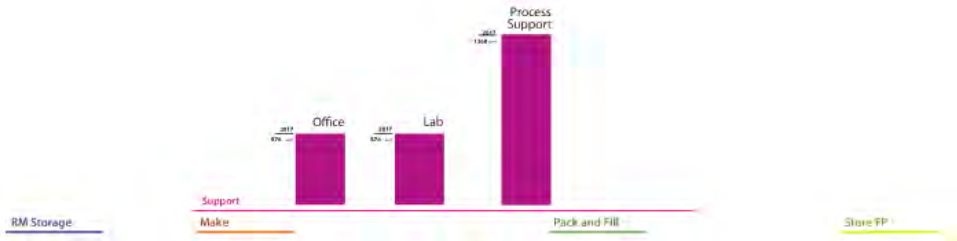


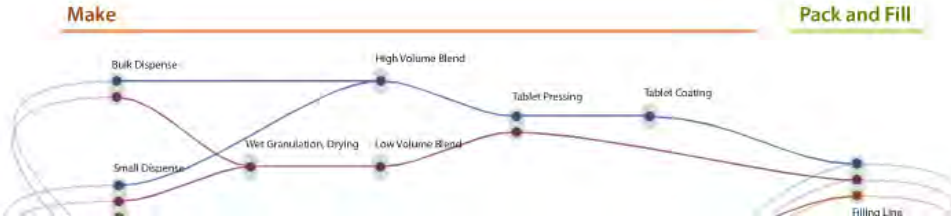
0

Strategic Definition

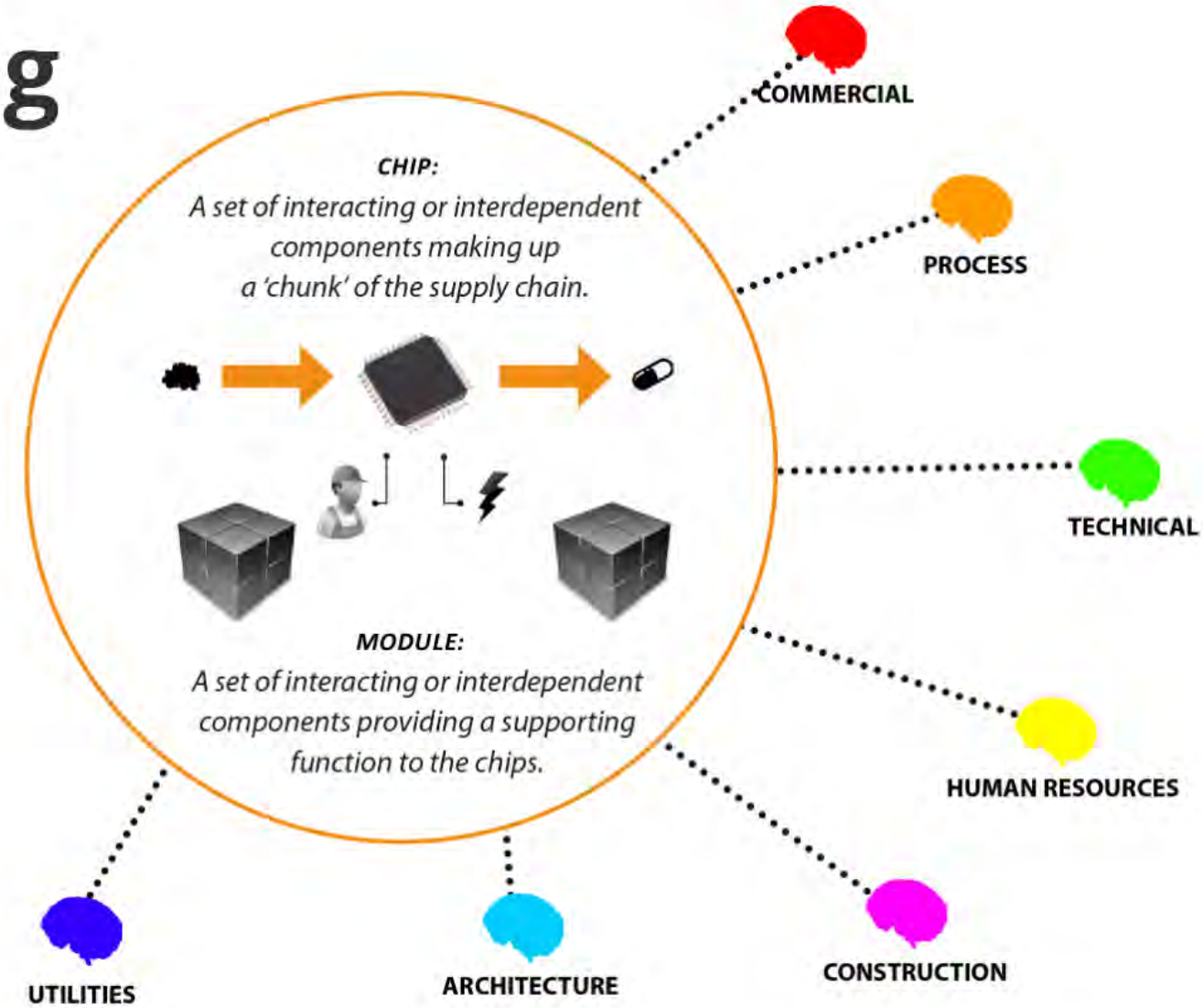
1

Preparation and Brief





'Chip' thinking



Pharmaceutical chips

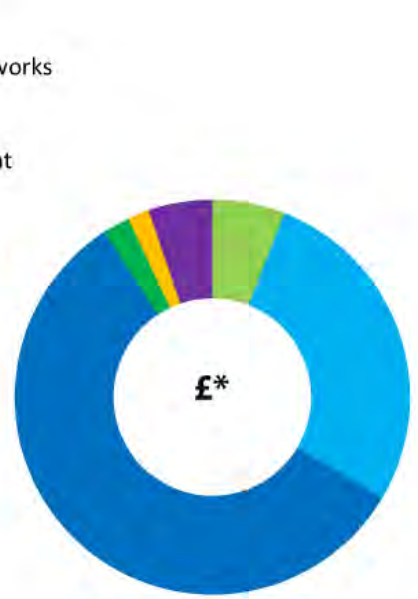
- Air Compression
- **Batch Mixing**
- Bulk Nitrogen Tank
- Blending
- Crystallisation
- Encapsulation
- Continuous Drying
- Fluid Bed Drying
- Spray Drying
- Continuous Granulation
- High Sheer Granulation
- Roller Compaction
- Sampling
- Sieving
- Product Inspection
- Microfluidic Emulsion
- Wet Bead Milling
- Solution Prep
- Solvent Handling
- Spray Drying
- Tablet Coating
- Tablet Compression
- Wash

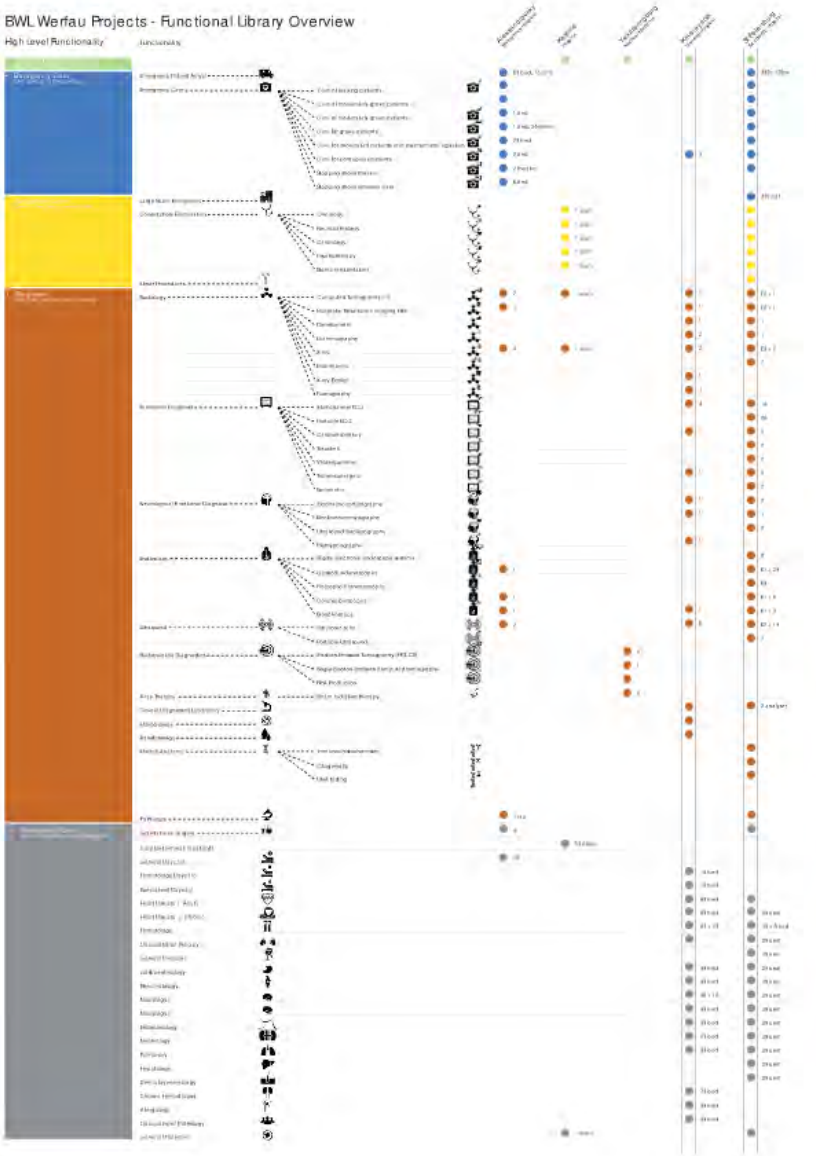
BATCH MIXING

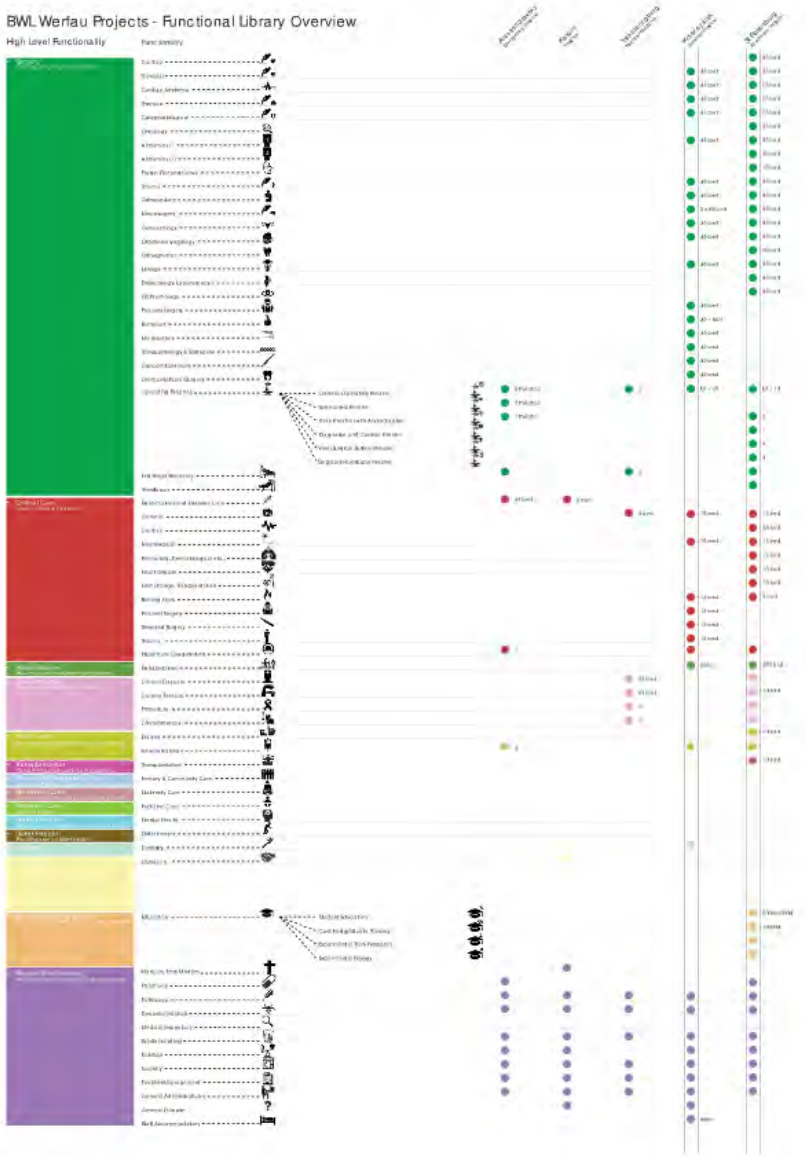
TECHNICAL DATA

Equipment			
Batch mixer			-
Dust collection / extraction			-
Tanks			-
Portable totes			-
Discharge from small and bulk dispense			
Dimensions			
Length		mm	-
Width		mm	-
Height		mm	-
Area		m^2	-
Volume		m^3	
Electrical			
Power LV supply	KVA		88
Lighting	Lux		500
HVAC			
Air change rate		AC/hr	10
Diversified cooling loads	kw		44
Process			
Plant steam		Kg/hr	-
Compressed air 6-bar		m^3/hr	-
Total process water		kg/s	0.45
CIP total process water		kg/s	
Domestic			
Total RAW water	kg/s		-

*Mapped Chip Capex only as guide:
Mapping inc. equipment, facility, M&E, revenue, IT, external works
Excludes cost of land
Excludes inflation
Includes fees, etc (see assumptions)
Excludes import and local taxes / duties




BWL Werfau Projects - Functional Library Overview
High Level Functionality
Functionality


BWL Werfau Projects - Functional Library Overview
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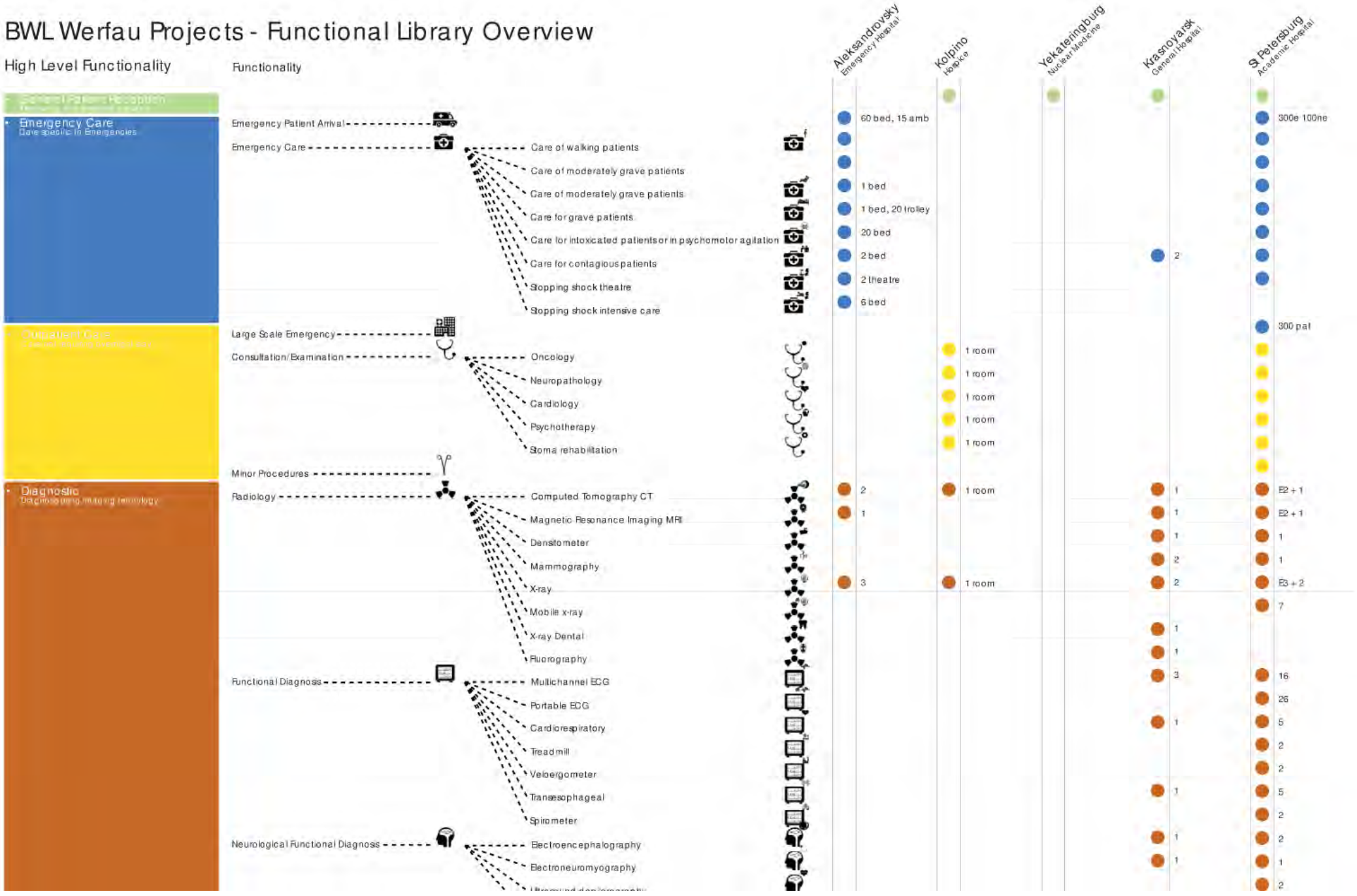
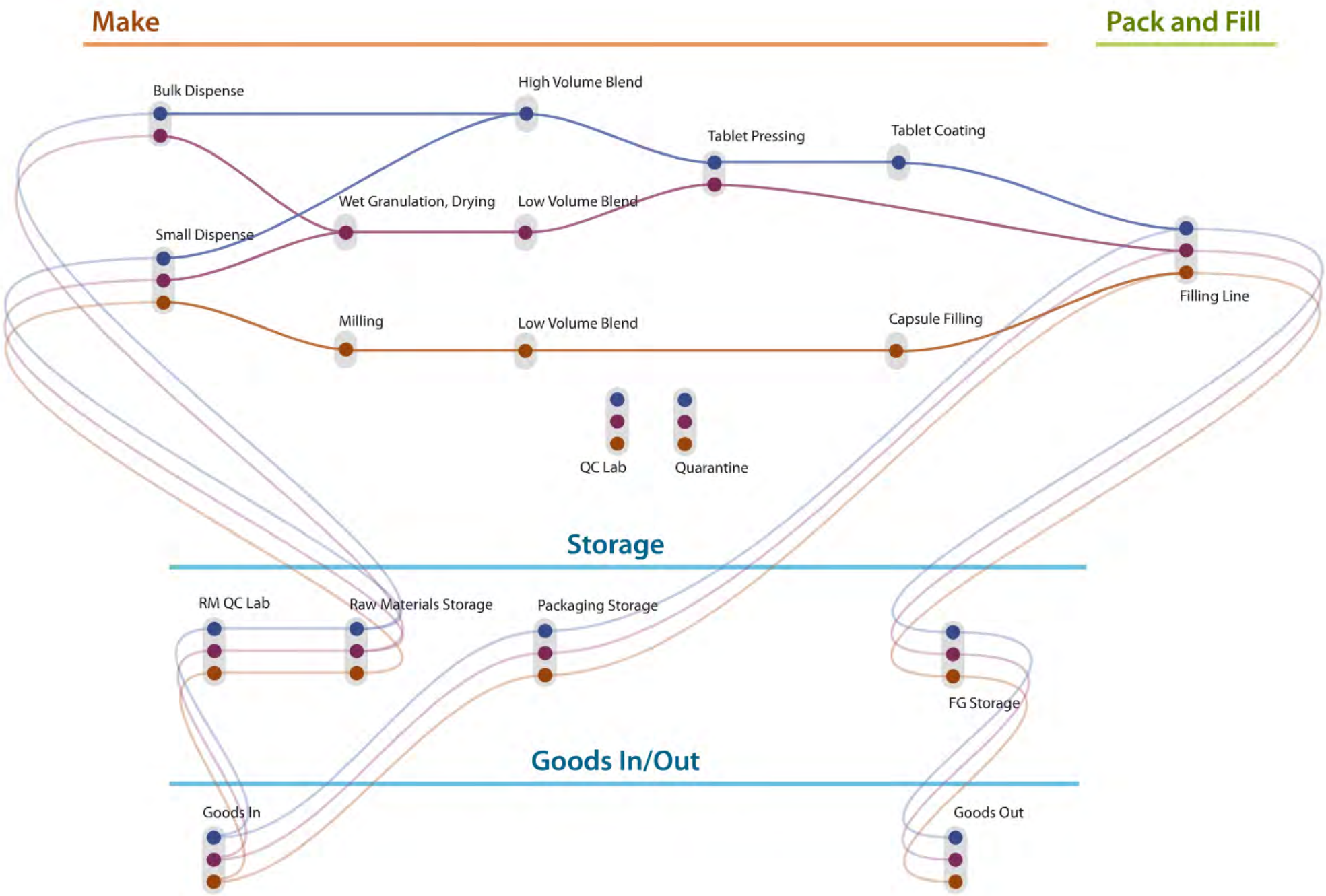
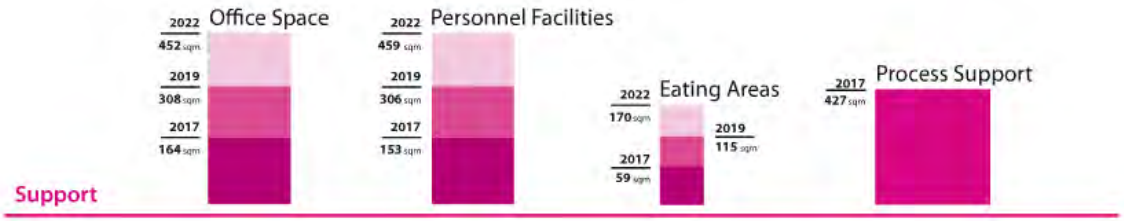
BWL Werfau Projects - Functional Library Overview




Make
Pack and Fill
Bulk Dispense
High Volume Blend
Tablet Pressing
Tablet Coating
Wet Granulation, Drying
Low Volume Blend
Small Dispense
Filling Line
Milling
Low Volume Blend
Capsule Filling
QC Lab
Quarantine
Storage
RM QC Lab
Raw Materials Storage
Packaging Storage
FG Storage
Goods In/Out
Goods In
Goods Out



RM Storage

Ambient Storage

2017 1 operator — 2022 2 operators

Make

Premix

2017 2 operators — 2022 6 operators

Extrude

2017 2 operators — 2022 6 operators

Dry

2017 2 operators — 2022 6 operators

Pack and Fill

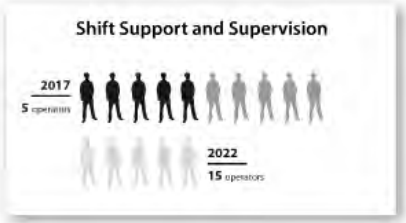
Pack and Fill

2017 1 operator — 2022 3 operators

Store FP

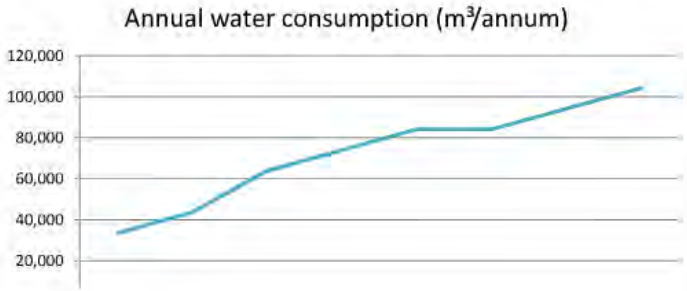
FP Storage

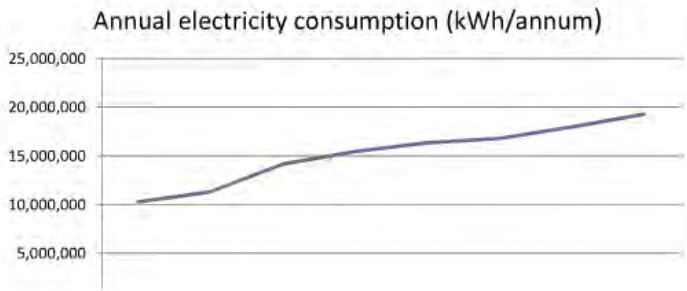
2017 1 operator — 2022 3 operators

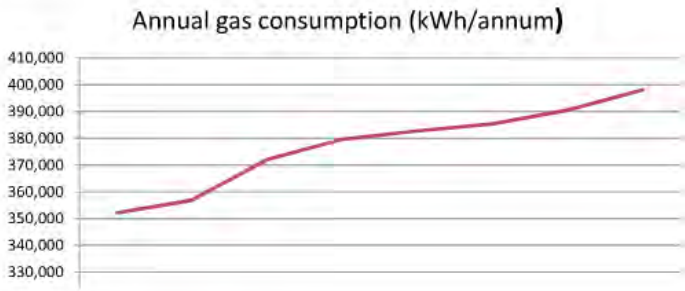


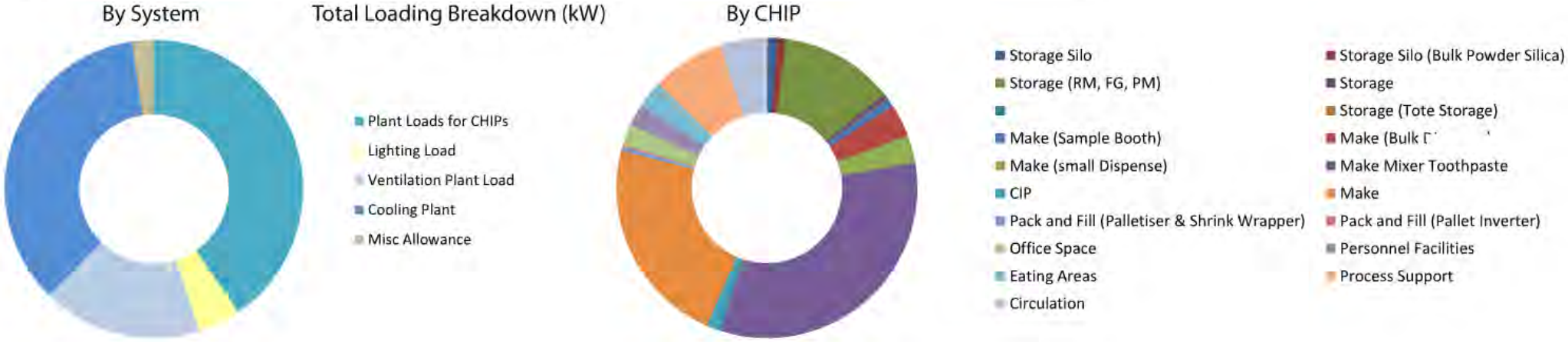
£18,240
(NHS grade D, newly qualified nurse, outside London)

x 20 years = 152m²
£2,400/m²


Annual water consumption (m³/annum)
120,000
100,000
80,000
60,000
40,000
20,000

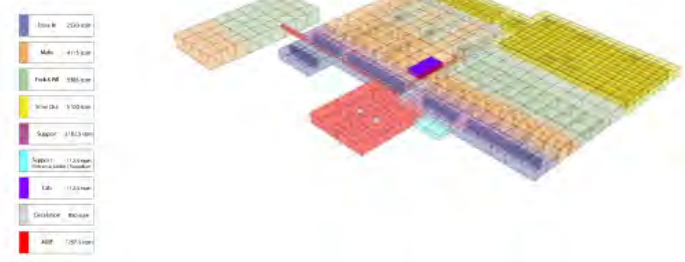

Annual electricity consumption (kWh/annum)
25,000,000
20,000,000
15,000,000
10,000,000
5,000,000


Annual gas consumption (kWh/annum)
410,000
400,000
390,000
380,000
370,000
360,000
350,000
340,000
330,000


By System
Total Loading Breakdown (kW)
Plant Loads for CHIPs
Lighting Load
Ventilation Plant Load
Cooling Plant
Misc Allowance
By CHIP
Storage Silo
Storage Silo (Bulk Powder Silica)
Storage (RM, FG, PM)
Storage
Storage (Tote Storage)
Make (Sample Booth)
Make (small Dispense)
Make Mixer Toothpaste
CIP
Make
Pack and Fill (Palletiser & Shrink Wrapper)
Pack and Fill (Pallet Inverter)
Office Space
Personnel Facilities
Eating Areas
Process Support
Circulation

2

Concept Design

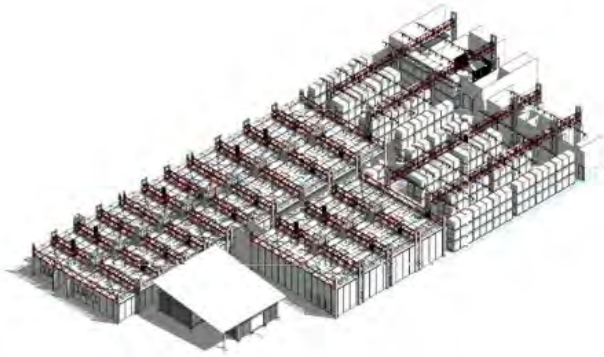


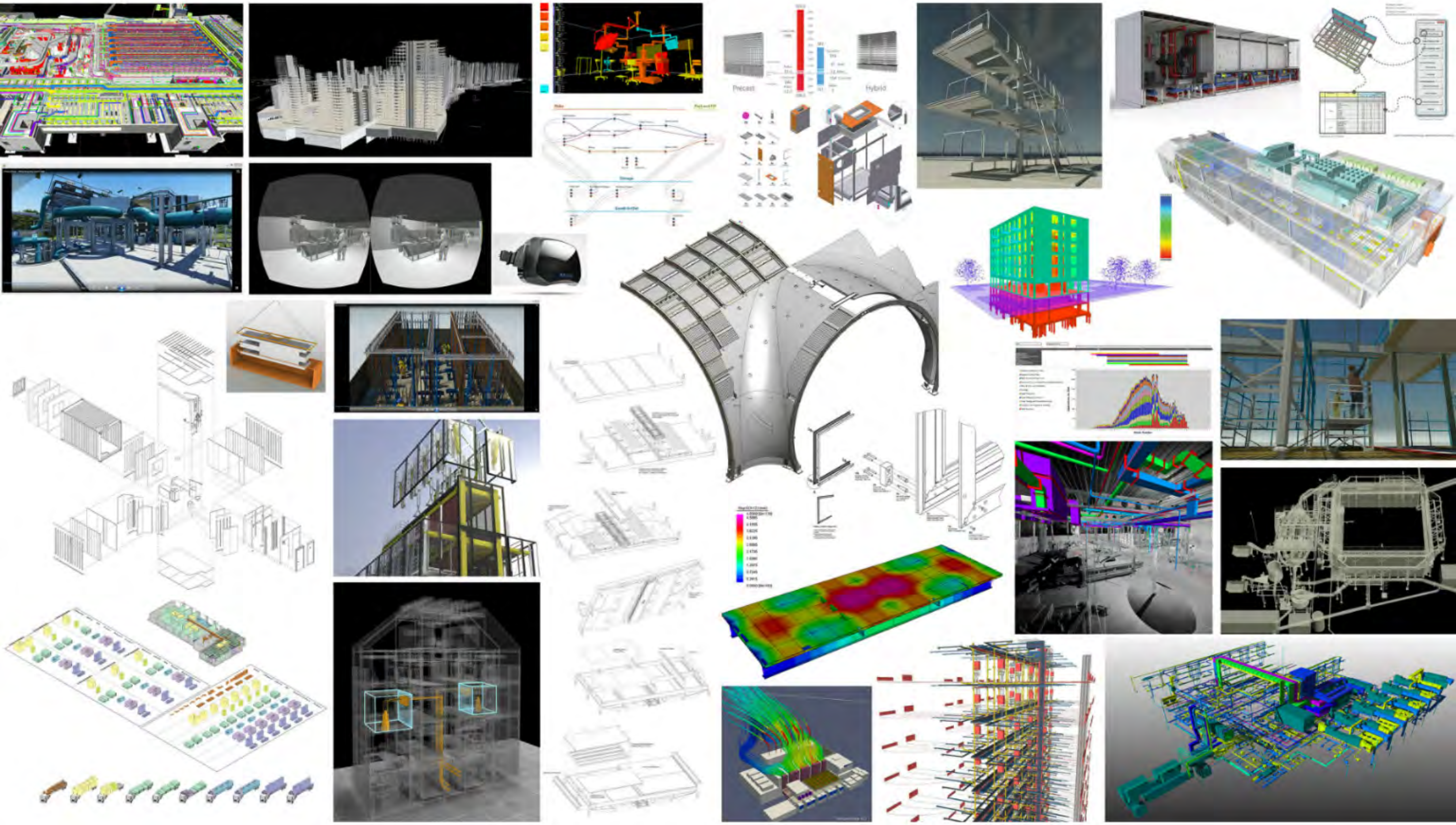
3

Developed Design

4

Technical Design



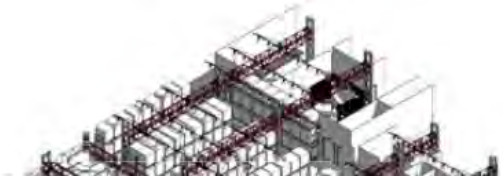

Precast
Hybrid

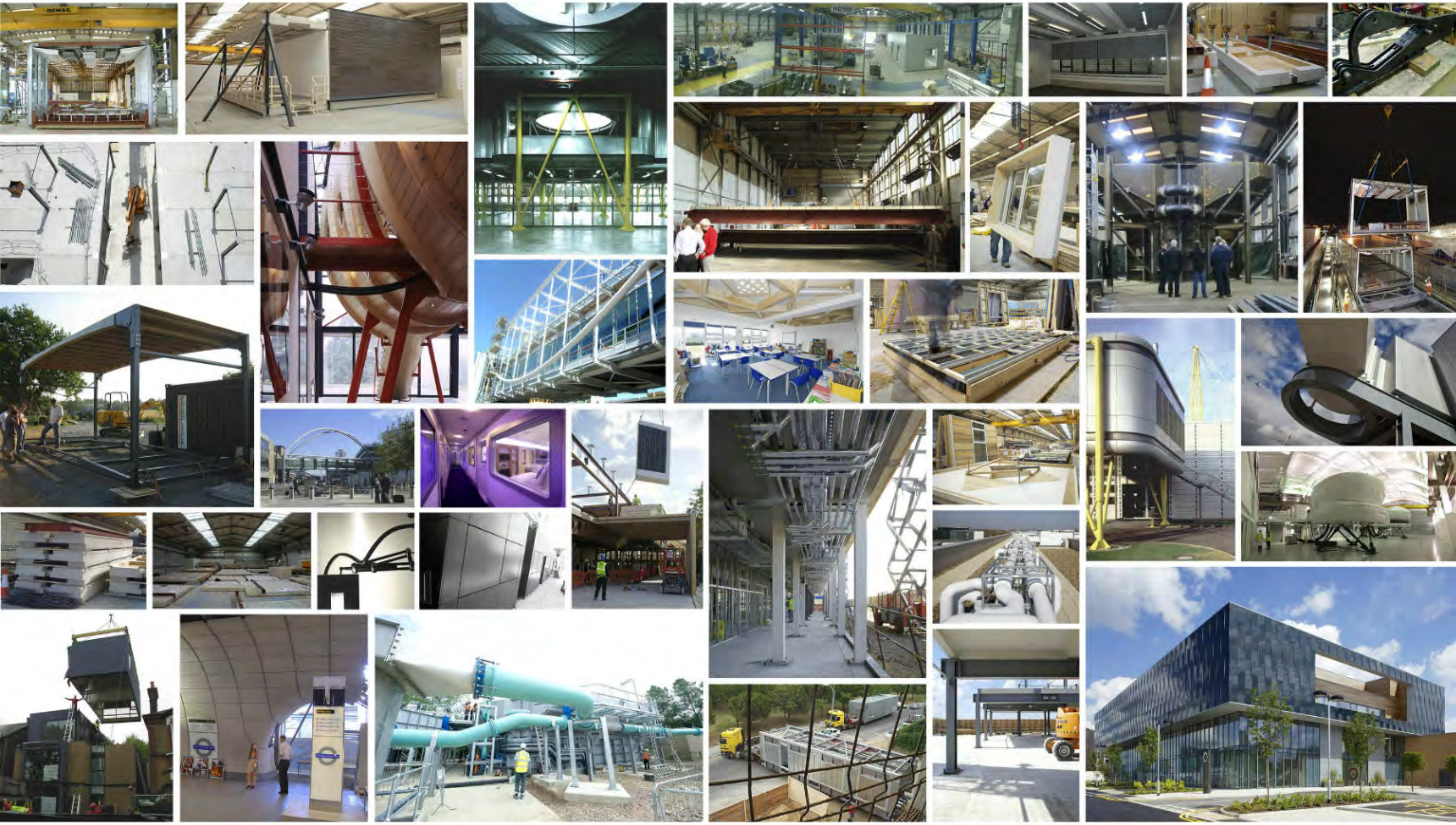
4

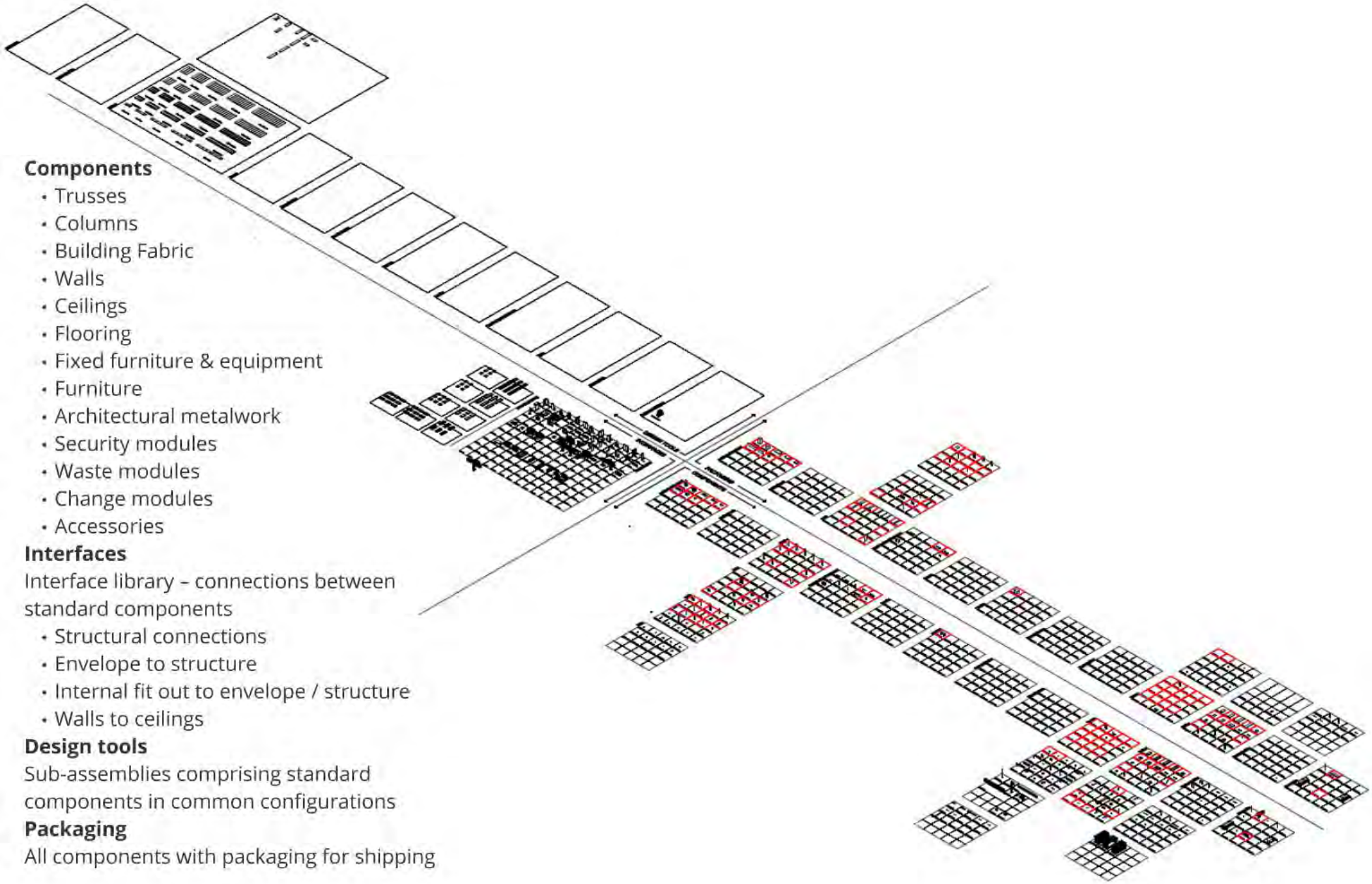
Technical Design

5

Construction







Components

- Trusses
- Columns
- Building Fabric
- Walls
- Ceilings
- Flooring
- Fixed furniture & equipment
- Furniture
- Architectural metalwork
- Security modules
- Waste modules
- Change modules
- Accessories

Interfaces

Interface library – connections between standard components

- Structural connections
- Envelope to structure
- Internal fit out to envelope / structure
- Walls to ceilings

Design tools

Sub-assemblies comprising standard components in common configurations

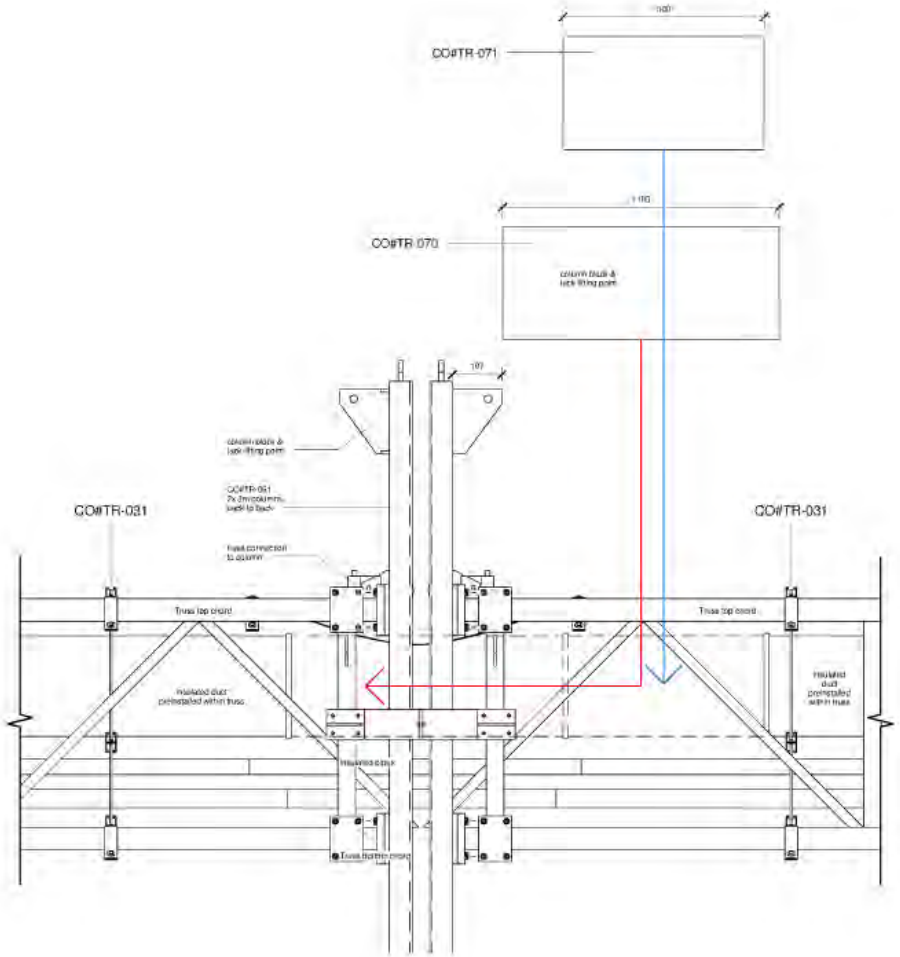
Packaging

All components with packaging for shipping

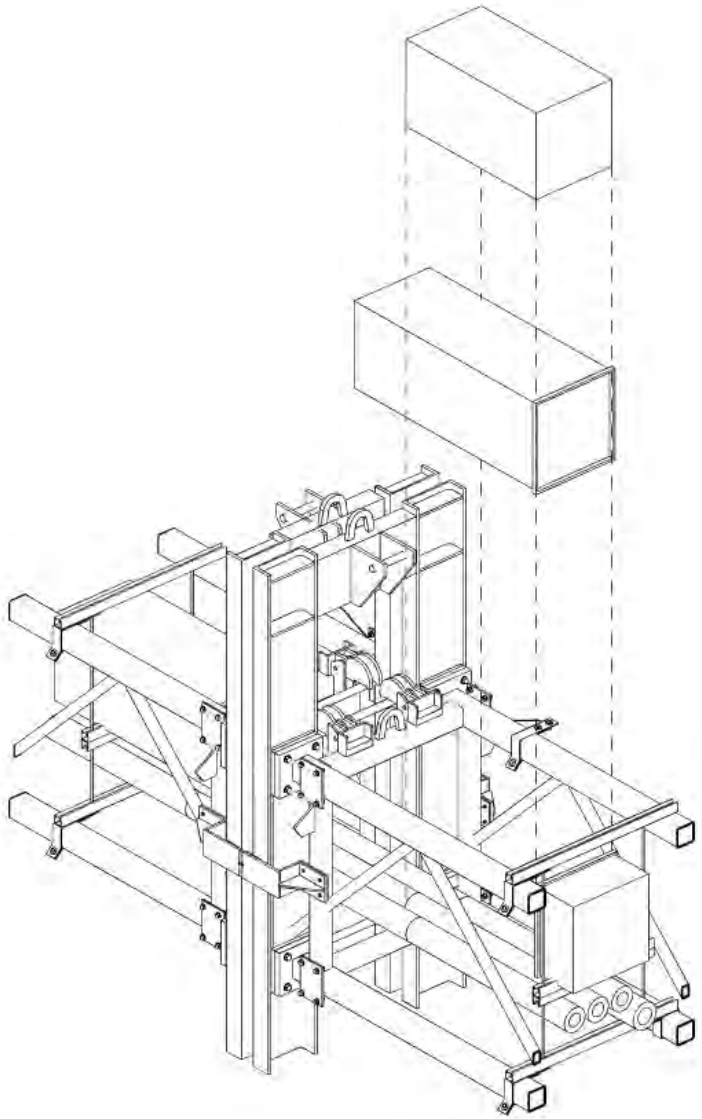
Truss Services Support Frame - Assembly Specification

Generally: Unistrut services support frame with connection brackets for mounting services inside trusses.
Related drawings: CO#TR-031
Structural Support: From truss top and bottom chords, max 1200 c/c
Nut & Bolt Fixings: M8x50, Penny Washer & Nylock Nut
Installation: This component will typically be preinstalled within the truss, however where fitting on site is required follow the instructions below:

Assembly Instructions:
1. Unpack CO#TR-031 for installation onto the truss.
2. Identify the correct location on the truss and lay CO#TR-031 on the floor next to it.
3. Remove bolts 1 and 2 from each of the mounting brackets, keep the bolts and lower bracket portions together.
4. Mount CO#TR-031 vertically in approximately the correct location of the truss top chord.
5. Reapply the lower bracket portions and loosly fit bolts 1 and 2 to each bracket.
6. Slide CO#TR-031 into its final position.
7. Tighten bolts 1 and 2 using a torque wrench to lock CO#TR-031 into position.
8. Once all services supports are in place (max 1200mm c/c) ,install ducts and pipes from above and connect to unistrut horizontal bar using steel straps & fixings. (EXPAND ON THIS)



Section 1:20



Axonometric View 1:10

Client:

gsk GlaxoSmithKline

HAZARD IDENTIFICATION LEGEND:

HAZARD IDENTIFICATION (Is none exists mark none relevant)	CONTROL AND MITIGATION MEASURES
To be confirmed	

NOTE:
Hazards listed above are only those considered significant risks and;
a) Not likely to be obvious to a competent contractor or other designers,
b) Unusual, or
c) Likely to be difficult to manage effectively.

The above should be read in conjunction with additional information contained in the Pre-Construction Information documentation.

REV	DRAWN	DATE	CHECKED

Project:
GSK System Design

Drawing Title:
Truss to Truss Services Connection IN#043

Drawing Number:
12018-SD-BWL-IN-043

Scale:
1 : 20

Paper Size:
A3

brydenwood

Truss Services Support Frame - Assembly Specification

Generally: Unistrut services support frame with connection brackets for mounting services inside trusses.
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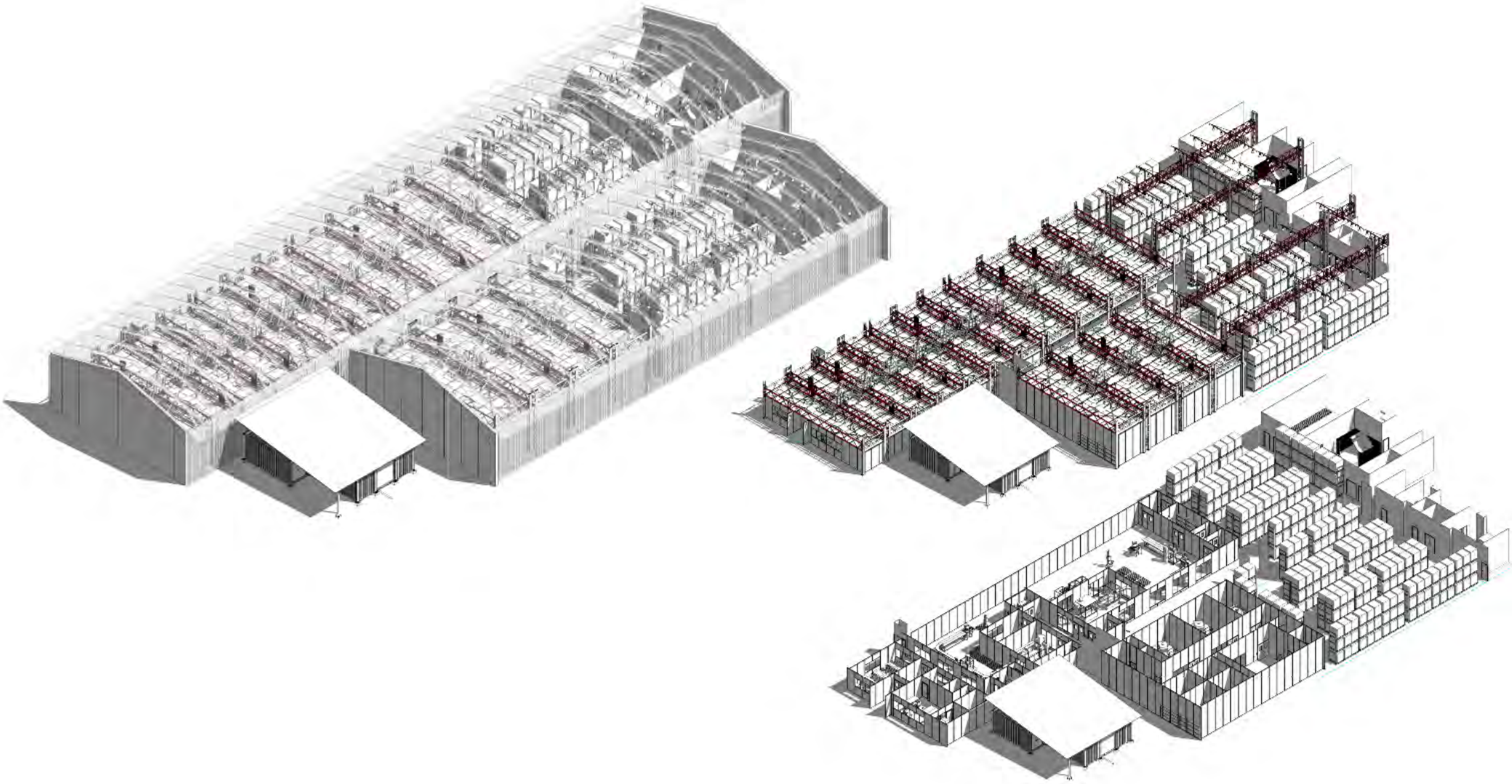
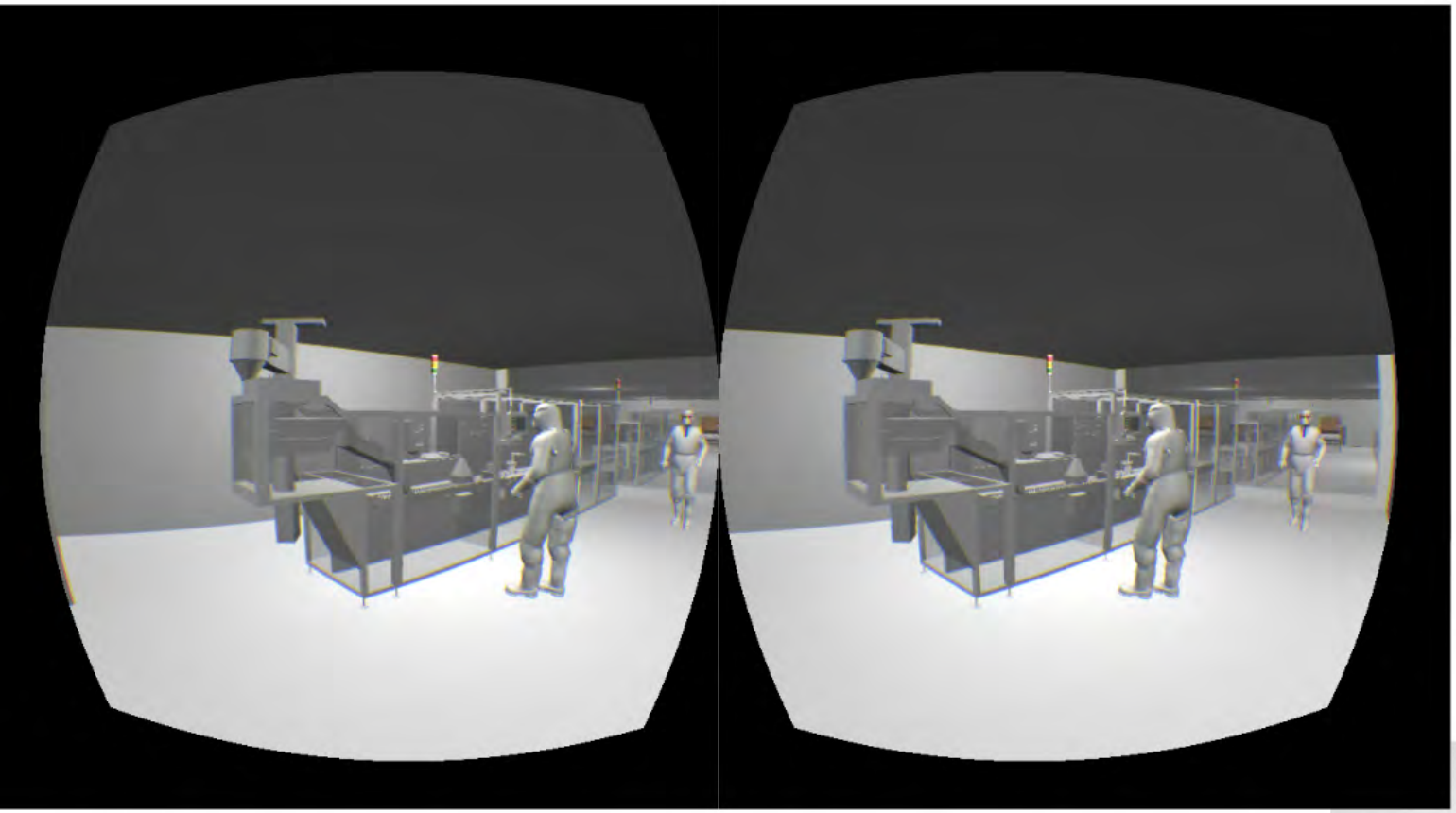
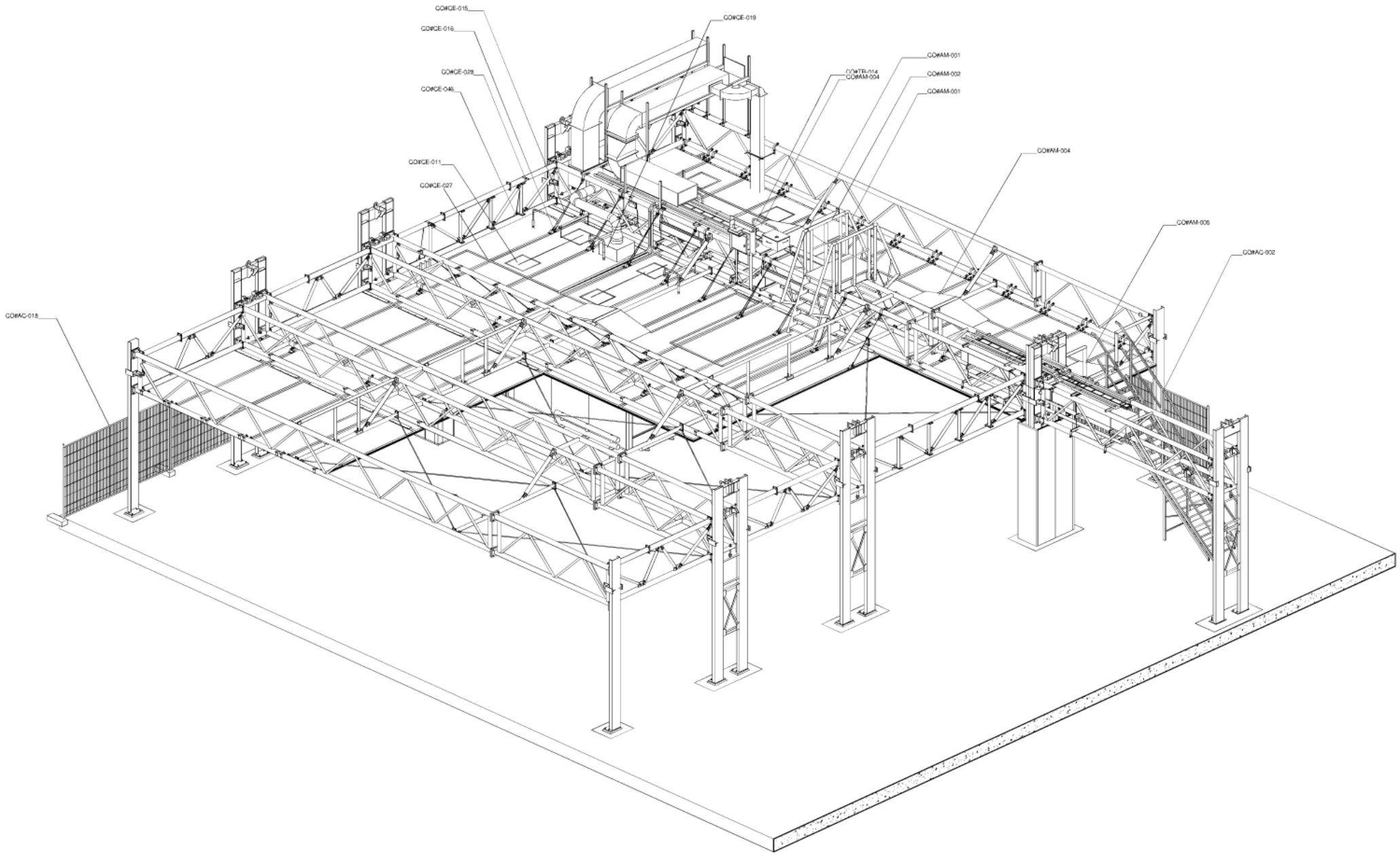





Oculus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CO#CE-016
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CO#CE-027
CO#CE-019
CO#TR-014
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CO#AM-001
CO#AM-002
CO#AM-001
CO#AM-004
CO#AM-006
CO#AC-002
CO#AC-018


gsk

www.myarcsset.net/Manage/FileManager.aspx?asset_number=10000192289

File Manager 10000192289

Name

- 10000192289
  - Bolt Install
  - Bracket Drawings
  - Install Sequence
  - Installation RAMS
  - Maintenance Info
  - Packing Instructions
  - Panel Drawings
  - Supplier Details

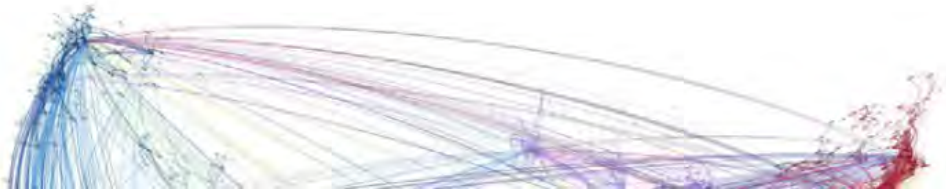
Preview

6

Handover and Close Out

7

In Use



Asset Data | Asset Profile | Image Viewer

www.myarcsset.net/DesktopModules/AssetProfile/assetProfile.aspx?assetNumber=10000192289

10000192289

Owner: GSK
Created By:
Created On:
Location: 51.429220, 0.596890
Last Modified: 6/24/2015 10:39:58 AM

Actions

Asset Elements

gskSysGen#Component Number	CO#CE-002
gskSysFin#Finish	White Polyester Powder Coat
gskSysDel#Packaged Size	
gskSysDel#Packaged Weight	
gskSysGen#Supplier	NULL
gskSysCost#Supply PerUnit	
gskSysGen#Assembly Sequence Number	6
gskSysGen#Merps Asset Reference	NULL
Family Name	gskEquip#PuracoreCeilingPanel 3030 x1200
Container TAG ID	
Component ID	2906639
gskSysGen#Category	GMP Ceilings
gskSysGen#Instance Number	036
gskSysGen#Parent Component Number	NULL
gskSysDim#Length	3030
gskSysDim#Width	1200
gskSysDim#Height	50
gskSysDim#Weight	44.266

Recent Tasks

User/Time	Task
isiew.gskbeta 6/24/2015 10:39:57 AM	02 Assembly
isiew.gskbeta 6/2/2015 2:44:19 PM	02 Assembly
isiew.gskbeta 6/2/2015 12:13:55 PM	01 Pre-Assembly
sgriffiths.gskbeta 4/15/2015 4:01:00 PM	02 Manufacture

Comments

Tell me something

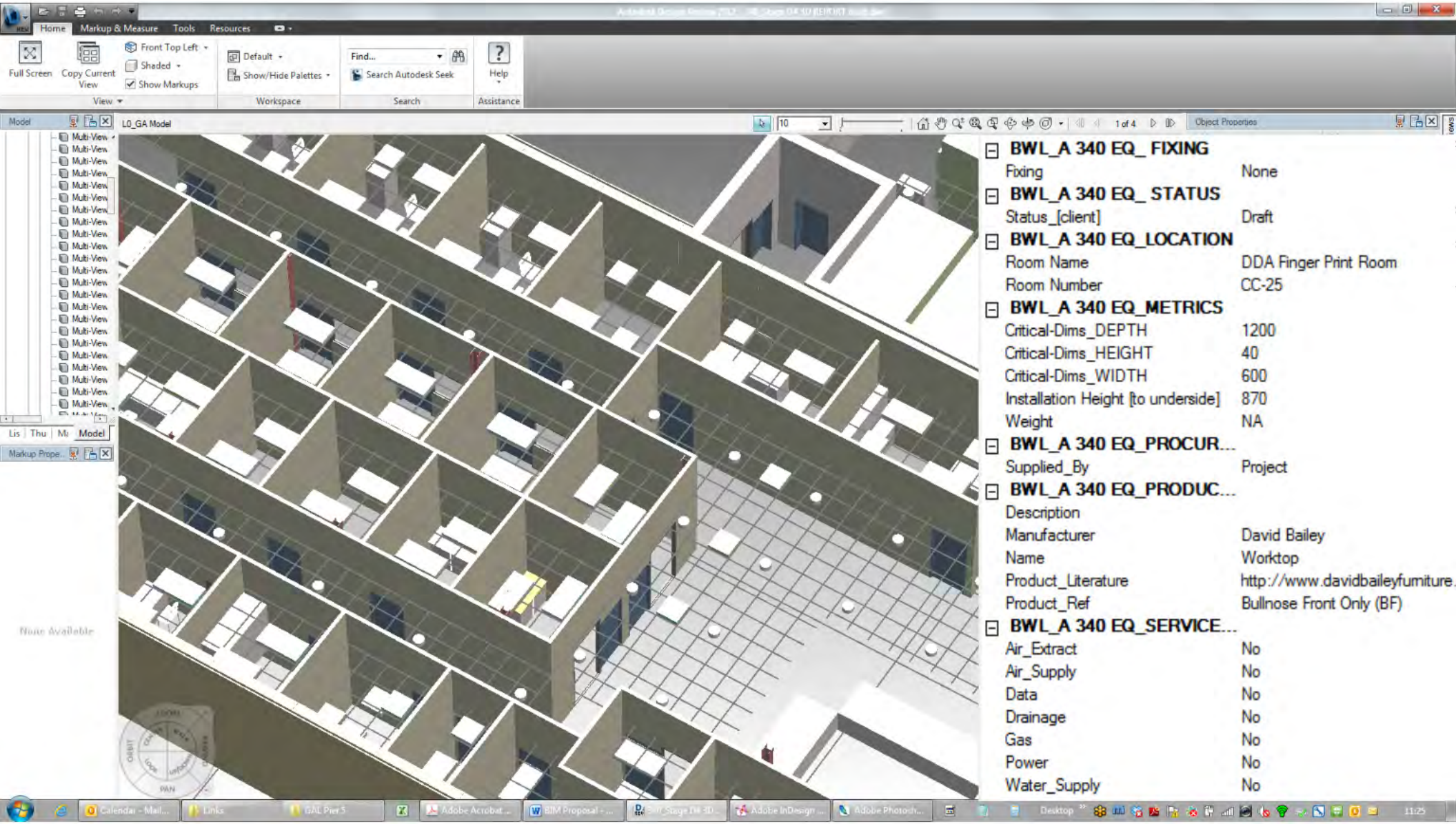
Share

Timeline

4
Total Tasks
TASKS

17
Total Documents
DOCUMENTS

Location


Home
Markup & Measure
Tools
Resources
Full Screen
Copy Current View
Front Top Left
Shaded
Show Markups
Default
Show/Hide Palettes
Find...
Search Autodesk Seek
Help
View
Workspace
Search
Assistance
Model
L0_GA Model
Object Properties
BWL_A 340 EQ_ FIXING
Fixing None
BWL_A 340 EQ_ STATUS
Status_[client] Draft
BWL_A 340 EQ_LOCATION
Room Name DDA Finger Print Room
Room Number CC-25
BWL_A 340 EQ_METRICS
Critical-Dims_DEPTH 1200
Critical-Dims_HEIGHT 40
Critical-Dims_WIDTH 600
Installation Height [to underside] 870
Weight NA
BWL_A 340 EQ_PROCUR...
Supplied_By Project
BWL_A 340 EQ_PRODUC...
Description
Manufacturer David Bailey
Name Worktop
Product_Literature http://www.davidbaileyfurniture.
Product_Ref Bullnose Front Only (BF)
BWL_A 340 EQ_SERVICE...
Air_Extract No
Air_Supply No
Data No
Drainage No
Gas No
Power No
Water_Supply No
None Available

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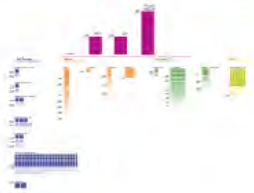

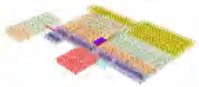

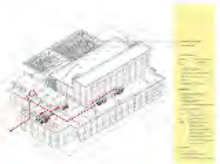

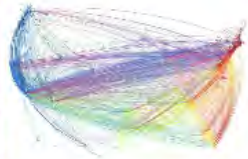

Questions

Jaimie Johnston
Director, Head of Global Systems
jjohnston@brydenwood.co.uk