

**HUB PROGRAMME
GUIDANCE NOTE
09/14**

**“Guidance on the preparation of Authority
Construction Requirements”**

November 2014

Contents

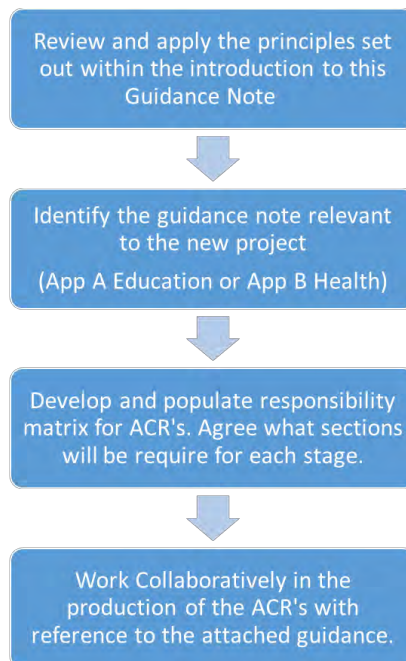
1.	Introduction	I
2.	Principle in the Development of the ACRs	I
3.	Structure of the Authority Construction Requirements Guidance Note	II
4.	How to Use the Authority Construction Requirements Guidance Note	III

Appendix A - Educational Projects - ACR Guidance note for Section A - E

Appendix B - Health Projects - ACR Guidance note for Section A - E

Appendix C – DBFM Standard Form Content and guidance links

APPROACH TO APPLYING THIS GUIDANCE



1. Introduction

Within the Hub programme the first priority for any new project is to ensure that the new facility meets the Authority's performance requirements. By communicating these performance requirements concisely and early the Authority will reduce costs, time and support better outcomes for that project. The performance requirements are contained within the Authority Construction Requirements (ACRs).

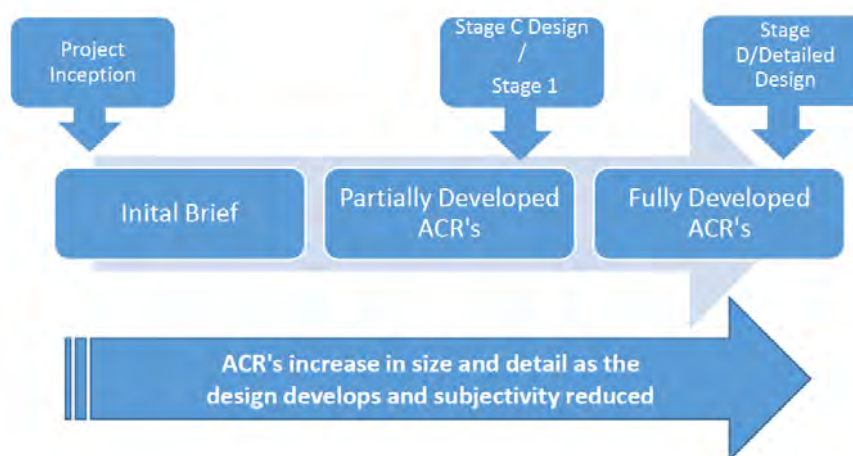
This guidance note provides a template structure for the ACRs and offers a consistent format, layout and approach in developing the ACRs for both capital and revenue funded projects. Moreover this template can be adopted for both Health and Education projects within the hub programme. This is to support an Authority to establish, understand and agree the project specific requirements early in the development such that hubCo's design and deliverables align to the performance requirements.

The development of the ACRs is a collaborative process where the project brief is developed from a high level document through to a comprehensive set of ACRs. Further guidance in relation to this approach can be found within the [Creation of the Project Brief and Authority Construction Requirements](#) guidance note.

The template ACRs are not a substitute for project specific advice and Authorities must take appropriate legal, financial and technical advice when adopting this guidance. An Authority must review the content and format in conjunction with its advisers to ensure that it is tailored to the requirements of their project and delivers value for money. For additional guidance to support the drafting of the template ACRs please refer to appendix A and B of this guidance note. Moreover for supplementary guidance in relation to the development of the ACRs and the wider DBFM contract please refer to the contents listed within appendix C.

2. Principle in the Development of the ACRs

The underlining principle in the development of the ACRs is that the Authority is responsible for the content and preparation of this document from initial brief through to a final set of ACRs. The development process is outlined below:-



To promote innovation and improve value for money it is key that the Authority develops the ACRs in partnership with hubCo. Firstly the Authority and hubCo must decide what sections of the template ACRs are required at each point of the development. Then both parties agree who is responsible for the production of each element. Each section of the ACRs can be developed through two processes:-

- A. Sections of the ACRs proposed by hubCo and approved by the Authority
- Or**
- B. Sections of the ACRs produced by the Authority.

A responsibility matrix has been included within Appendix A and B to allocate these responsibilities. The ACR should be drafted in 'output' or 'performance' terms in order to transfer all risks associated with achieving those performance requirements to hubCo. hubCo undertake the detailed design and construction of the Project, all subject to the Authority taking the operational functionality risk.

hubCo will submit the hubCo Proposals in response to the ACRs. The ShP will be assessed by the Authority against the ACRs for compliance, seeking to establish whether the proposed design meets all the requirements and minimum technical standards for the Project. In the event of a discrepancy between the two, the ACRs would prevail and the eventual finished building would be subject to compliance with the ACRs.

The enclosed guidance to the ACRs does not constitute a finalised set of requirements and the Authority should develop the ACRs to deliver best value. In developing the ACRs the Authority should:-

- Work collaboratively with hub.
- The Authority should involve relevant stakeholders (users, operators, estates, clinicians etc) to develop operational requirements for the new project.
- Assess any proposed performance requirements to deliver VfM.
- Ensure the ACRs meet their functional requirements.
- Ensure the ACRs align to their Affordability Cap or programme metrics.

3. Structure of the Template Authority Construction Requirements

The template structure for the ACRs are divided into five sections upon which the Participant can consider, amend and adjust accordingly to suit the needs of their project. This is a matter for the Authority to consider in conjunction with their technical adviser. This document and the supporting guidance are to act as a prompt and a discussion tool to ensure all aspects of the project have been suitably scoped. The ACRs template has been sub-divided into 5 sections listed below:-

Schedule Part 6 Construction Matters

- Section 3 Authority Construction Requirements
 - **Sub-Section A Introduction**
 - **Sub-Section B Definitions & Abbreviations**
 - **Sub-Section C General Requirement**
 - **Sub-Section D Operational Specific Requirements**
 - **Sub-Section E Soft FM Specific Requirements**

The ACRs are contained within Schedule Part 6 Section 3 of the standard form DBFM contract. A full list of all parts of the standard for DBFM is contained within Appendix C with links to relevant guidance and contract sections.

4. How to Use the Authority Construction Requirements Guidance Note

The Authority when drafting the ACRs should consider the following points:-

- 4.1. Whilst the ownership and approval of the ACRs must lie with the Authority, it is expected that consideration be given to the adoption of a live and transparent document for agreement, and in some cases prepared in collaboration, with hubCo. This approach should look to reduce duplication of Authority and hubCo works and aim to improve innovation and efficiencies through removal of potentially unnecessary design requirements. Any collaborative drafting of the ACRs between the Authority and hubCo should not, however, be to the detriment of minimum performance standards set out in the template document; any amendments to minimum performance standards should be listed as derogations with supporting reasons in hubCo's Proposals for separate agreement and transparency.
- 4.2. Section 3 (Authority's Construction Requirements) of Schedule Part 6 (Construction Matters) and this respective guidance is by no means exhaustive and is not a substitute for project-specific advice. Authorities must take appropriate legal, financial and technical advice when using these documents.
- 4.3. The proposed headings within the guidance note are generally considered suitable for all facilities. However, it is SFT's expectation that these are reviewed relevant to an Authority's needs and can be amended/removed as required.
- 4.4. In setting performance requirements for the Facilities (for example when setting specific overheating criteria, daylighting factors etc.) an Authority must consult all relevant guidance including, as a minimum, what is noted within this guidance note, and follow Good Industry Practice through consultation with its technical advisors. Where an Authority proposes to depart from the guidance documents it should undertake a design and cost impact assessment of the proposal to ensure they deliver value for money.
- 4.5. The ACRs must be drafted in 'output' or 'performance' terms in order to transfer all risks associated with achieving those output / performance requirements to hubCo who will undertake the detailed design and construction of the Project, all subject to the Authority taking the operational functionality risk.

APPENDIX A
Education Guidance Note
ACR Sub-Section A- E

Introduction

This document provides guidance to an Authority in completing SFT's education template for Sub-Section C (*General Requirements*) of Section 3 (*Authority's Construction Requirements*) of Schedule Part 6 (*Construction Matters*) for DBFM projects.

This guidance aims to provide clarity in the relevance of the template drafting to an Authority's Project and provide additional prompt notes for consideration, review and inclusion within the Project specific Sub-Section C drafting. The following guidance note contains the following sub-sections:-

- Contents Page
- Sub-Section A – Introduction
- Sub-Section B – Definitions & Abbreviations
- Sub-Section C – General Requirements
- Sub-Section D – Operational Specific Requirements
- Sub-Section E – Soft FM Specific Requirements

Value for Money

The enclosed template ACR does not constitute a finalised set of requirements and the Authority should develop the ACRs to deliver best value. In developing the ACRs the Authority should:-

- Work collaboratively with Hub,
- Assess any proposed performance requirements deliver VfM
- Ensure the ACRs meet their functional requirements.
- Ensure the ACRs align to their budget and/or programme metrics.

EDUCATIONAL PROJECT

Authority = Produced by the Authority
Hubco = Proposed by Hubco & approved by Authority

The content list provides a template structure for the ACR's for consideration by the Authority.

ITEM	Authority	Hubco	Not Required
SECTION A - INTRODUCTION			
SECTION B - DEFINITIONS & ABBREVIATIONS			
SECTION C GENERAL REQUIREMENTS			
1.0 Introduction			
2.0 Project Wide Requirements			
2.1 The Project			
2.2 Approach to Design			
2.3 Minimum Design and Construction Standards and Requirements			
2.4 Specific Educational Guidance and Standards			
2.5 Hierarchy of Standards			
2.6 Information Technology & Building Information Management (BIM)			
2.7 Record Information			
3.0 General Design Requirements			
3.1 General Design Philosophy			
3.2 Character & Innovation			
3.2.1 Vision			
3.2.2 Service Excellence			
3.2.3 Architectural Vision			
3.2.4 Design Innovation			
3.2.5 Recognisable Quality			
3.2.6 Internal Environment			
3.2.7 Quality Environment			
3.2.8 Light, Colour & Texture			
3.2.9 Sense of Place			
3.2.10 Neighbourhood & Community			
3.2.11 Existing Site Users			
3.2.12 Site Fit			
3.3 Citizen Satisfaction			
3.3.1 Design Concept and Aesthetics			
3.3.2 Scale, Proportion & Composition			
3.3.3 The Arts			
3.4 Uses			
3.4.1 Service Philosophy			
3.4.2 Educational & Non-Educational Functionality			
3.4.3 Functional Relationships			
3.4.4 Manual Handling			
3.5 Adaptability & Expansion			
3.6 Spaces			
3.6.1 Accommodation Requirements			
3.6.2 Floor Layouts			
3.6.3 Equipment Requirements			
3.6.4 Room Data Sheets			
3.6.5 Interior Design			
3.6.6 Space Standards			
3.7 Anti-Vandalism			
3.8 Security & Control			
3.8.1 Secured by Design			
3.9 Accessibility and Inclusion			
4.0 Site Specific Requirements			
4.1 The Existing Site			
4.2 Site Boundary			
4.3 Site Safety			
4.3.1 Retained Estate Site Safety			
4.4 Programming			
4.5 Travel Plan			
4.6 Existing Services			
4.7 Demolition & Enabling Works Requirements			
4.8 Phasing / Occupation			
4.9 Construction Period Requirements			
4.9.1 General			
4.9.2 Control of Waste			
4.9.3 Vehicle Access and Parking			
4.9.4 Temporary Buildings for the Use of the Authority			
4.9.5 Protective Clothing			
4.9.6 Working Hours			
4.9.7 Deliveries			
4.9.8 Schedule of Condition			
4.9.9 Any contingency plans in the event of emergencies			

EDUCATIONAL PROJECT

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The content list provides a template structure for the ACR's for consideration by the Authority.

ITEM	Authority	Hubco	Not Required
SECTION C GENERAL REQUIREMENTS (Cont)			
4.9.10			
4.9.11			
4.9.12			
4.9.13			
4.9.14			
4.9.15			
4.9.16			
4.9.17			
4.9.18			
4.9.19			
4.9.20			
4.9.21			
4.10			
4.10.1			
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4.10.3			
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4.12			
5.0			
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5.17			
5.17.1			
5.17.2			
5.17.3			
5.17.4			
5.18			
5.19			
5.19.1			
5.19.2			
5.19.3			
5.20			
5.21			
5.22			
5.23			
5.24			
5.25			
5.26			
5.26.1			
5.27			
5.28			
5.29			
5.30			
5.31			
6.0			
6.1			
6.2			
6.3			
6.4			
6.5			

EDUCATIONAL PROJECT

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The content list provides a template structure for the ACR's for consideration by the Authority.

ITEM		Authority	Hubco	Not Required
SECTION C GENERAL REQUIREMENTS (Cont)				
6.6	Earthworks			
6.7	Movement Joints			
6.8	Building Super-Structure & Envelope			
6.9	Fire & Corrosion Protection			
6.10	Durability & Maintainability			
6.11	Drainage			
7.0	External Works			
7.1	Security			
7.2	Soft Landscaping Requirements			
	7.2.1 General			
	7.2.2 Planting Areas			
	7.2.3 Soil Preparation & Topsoil			
	7.2.4 Trees			
	7.2.5 Shrubs & Groundcover			
	7.2.6 Planting & Watering			
	7.2.7 Turf			
	7.2.8 Health & Safety Considerations			
7.3	Hard Landscaping Requirements			
	7.3.1 Synthetic Grass Pitches			
	7.3.2 Hard Surface Games Area			
	7.3.3 Fire Assembly Area			
7.4	Grass Sports Pitch / Athletics Areas			
7.5	External Facilities			
7.6	External Equipment and Furniture			
7.7	Site Boundary Requirements			
7.8	Site Access & Circulation			
	7.8.1 Vehicular Access			
	7.8.2 Emergency Vehicle Access			
	7.8.3 Service Vehicle Access			
	7.8.4 Pedestrian Access			
7.9	Roads, Footpaths, Cycleways and Car Parking			
	7.9.1 Road Markings & Signage			
	7.9.2 Cycleways and Cycle Storage			
	7.9.3 Car [and Motor Bike] Parking			
	7.9.4 Disabled / Accessible Parking			
	7.9.5 Drop-off / Pick-up / [Public Transport Access and Stops]			
8.0	Mechanical & Electrical Engineering Requirements			
8.1	Minimum Engineering Standards			
8.2	Energy Centres and Plant Areas			
8.3	Engineering Services Interface with Building Fabric			
8.4	Performance Standards			
	8.4.1 Energy Performance			
	8.4.2 External Design Conditions			
	8.4.3 Internal Design Conditions			
	8.4.4 Thermal Comfort			
	8.4.5 Air Quality			
	8.4.6 Vibration			
	8.4.7 Acoustics			
	8.4.8 Daylight			
8.5	Incoming Services			
	8.5.1 General			
	8.5.2 Security of Incoming Supplies			
	8.5.3 Provision for Isolation			
8.6	Mechanical Systems			
	8.6.1 Building Management Systems & Controls			
	8.6.2 Main Water Connection to the Site			
	8.6.3 Site Mains Water, Fire Water, Quality & Distribution			
	8.6.4 Choice of Fuels			
	8.6.5 Gas Installations			
	8.6.6 Heating System			
	8.6.7 Domestic Water Services			
	8.6.8 Hot Water Supply			
	8.6.9 Mechanical Vent, Air Conditioning and Comfort Cooling			
	8.6.10 Combined Heat and Power			
	8.6.11 Laboratory Gases			
	8.6.12 Local Exhaust Ventilation Systems			
	8.6.13 Fume Cupboard & Micro-biological Safety Cabinets			
	8.6.14 Drainage			
	8.6.15 Fuel Storage Tanks			
8.7	Electrical Systems			
	8.7.1 Main & Sub-Main Distribution			

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Hubco = Proposed by Hubco & approved by Authority

The content list provides a template structure for the ACR's for consideration by the Authority.

ITEM		Authority	Hubco	Not Required
SECTION E - SOFT FM SPECIFIC REQUIREMENTS				
1	Scope of Service			
1.1	Scope of Service			
1.2	Specific Exclusions			
2	Activity Indicators			
2.1	Activity Level Projections			
2.2	Operating Hours			
2.3	Service Trends			
3				
3.1	Overview			
3.2	Operational Processes			
3.2.1	[Activity 1]			
3.2.2	[Activity 2]			
3.3	Process Flow Diagram			
4	Key Facilities Requirements			
4.1	General Requirements			
4.2	Accommodation Requirements			
4.2.1	[Room Name]			
4.2.2	[Office]			
4.2.3	[Equipment Store]			
4.2.4	[Bulk Store]			
4.2.5	[Archive Store]			
5	Key Departmental Relationships			
5.1	General Requirements			
5.2	Relationships within Department			
6	Environmental and Building Services Requirements			
6.1	General Requirements			
6.2	Specific Room Requirements			

Sub-Section A: Introduction

Section 3 (*Authority's Construction Requirements*) of Schedule Part 6 (*Construction Matters*) of the Project Agreement encompasses the construction requirements of the Authority and is divided into the following Sub-Sections and Appendices:

Sub-Section A Introduction

Sub-Section B Definitions and Abbreviations

Sub-Section C General Requirements

This Sub-Section contains overall philosophy and standards for the design, construction and finish and associated infrastructure, both internal and external to the Facilities.

Sub-Section D Specific Educational Requirements

This Sub-Section contains design philosophy and specific requirements for each of the Educational Services to be provided from the Facilities.

Sub-Section E Specific Non-Educational Requirements

This Sub-Section contains Soft FM summary interface specifications and other Non-Educational specifications related to the Facilities.

[**Appendix A**¹ Schedule of Accommodation Schedule]

[**Appendix B** Site Status/Redline Site Boundary Drawing]

¹ Appendices are suggested examples only. An Authority to consider incorporation of those listed Appendices, and other relevant documents, specific to the requirements of the Project.

Sub-Section B: Definitions & Abbreviations

The Authority can use this section to list all abbreviations within their Authority Construction Requirements. A suggested list of abbreviations are below:-

24/7/365	Twenty four hours a day, seven days a week, 365 days a year
ACRs	Authority's Construction Requirements
AHU	Air Handling Unit
ANPR	Automatic Number Plate Recognition
ARP	Area Reception Point
B&ES	Building and Engineering Services Association
BIM	Building Information Modelling
BMS	Building Management System
BRE	Building Research Establishment
BREEAM	BRE Environmental Assessment Method
BS	British Standard
BSRIA	Building Services Research & Information Association
BPA	British Parking Association
CABE	Commission for Architecture and the Built Environment
C(C)HP	Combined (Cooling,) Heat & Power
CCTV	Closed-Circuit Television
CDM	Construction (Design & Management) Regulations
CEL	Scottish Government Chief Executive Letters
CEN	European Committee for Standardisation
Certified Wood	Timber certified by Forest Stewardship Council
CIBSE	Chartered Institution of Building Services Engineers
CIRIA	Construction Industry Research and Information Association
COSHH	Control of Substances Hazardous to Health
COSLA	Convention of Scottish Local Authorities
CP	Code of Practice
DDA	Disability Discrimination Act 2005
DfE	Department for Education
DfT	Department for Transport
DHW	Domestic Hot Water
DoE	Department of the Environment
DSR	Domestic Services Room
DTI	Department of Trade and Industry
EMS	Environmental Management System

EN	Euronorm Standards
EPC	Energy Performance Certificate
EPO	Emergency Power Off
FM	Facilities Management
GDBA	Guide Dogs for the Blind Association
HSE	Health & Safety Executive
HVAC	Heating, Ventilation & Air Conditioning
HWS	Hot Water Supply
ICE	Institute of Civil Engineers
ICT	Information & Communication Technology
IDS	Intruder Detection System
IEE	Institution of Electrical Engineers
IES	Integrated Environmental Solutions
IT	Information Technology
LAN	Local Area Network
LEV	Local Exhaust Ventilation
LPCB	Loss Prevention Certification Board
MUGAs	Multi Use Games Areas
NBS	National Building Specifications
O&M	Operations and Maintenance
OFTEL	The Office of Telecommunications
PIR	Passive Infra-red
PAS	Publically Available Specification
PoE	Power-over-Ethernet
PPE	Personal Protective Equipment
PPG	Planning Policy Guidance
RDD	Reviewable Design Data
RIBA	Royal Institute of British Architects
RNIB	Royal National Institute of Blind People
SEPA	Scottish Environment Protection Agency
SFPN	Scottish Fire Practice Notes
ShP	Sub-hubco's Proposals
SFT	Scottish Futures Trust
SI	International System of Units
SNH	Scottish National Heritage
SPP	Scottish Planning Policy
SUDS	Sustainable Urban Drainage System

UPS	Un-interruptible Power Supplies
VDU	Visual Display Unit
VoIP	Voice over Internet Protocol (or Voice Over IP)
WC	Water Closet
WEEE	Waste Electronic and Electrical Equipment Regulations
WRAP	Waste & Resources Action Programme

The Authority can list out any definitions within this section. For the avoidance of doubt, the following list of definitions does not repeat defined terms etc. identified in the Project Agreement. Some suggested abbreviations include:-

Adjacency Matrices	Means the Adjacency Matrices, which sets out the adjacency requirements i.e. inter-departmental relationships (both definite and preferable) of the Authority for the Facilities, as defined in Sub-Section D (Specific Educational Requirements) of Section 3 (<i>Authority's Construction Requirements</i>) of Schedule Part 6 (<i>Construction Matters</i>) of the Project Agreement
Council	Means the [Local] Council
Reviewable Design Data	Means the Reviewable Design Data which has the meaning in Section 5 of Schedule Part 6 (<i>Construction Matters</i>) of the Project Agreement
Schedule of Accommodation (SoA)	Means the Schedule of Accommodation, which details the type, size and number of rooms requirements of the Authority required within each department / unit, which can be found in Appendix A of Section 3 (<i>Authority's Construction Requirements</i>) of Schedule Part 6 (<i>Construction Matters</i>)
Secured by Design	means the official UK Police flagship initiative supporting the principles of 'designing out crime'
Users	Means the personnel within and associated to the authority who shall have an influence in the design requirements for the Facilities, including teachers.

Sub-Section C: General Requirements

Sub-Section C – Contents

Whilst it is expected an Authority will initially review and address all chapters and headings within the Sub-Section C template document, some chapters cover ‘subjective’ project requirements such as expectations of what the Facilities will deliver i.e. its ‘architectural vision’ and ‘building character’.

Subjective requirements, which cannot be captured in subhubCo written or drawn proposals, should fall away from the finalised contractual ACRs at Financial Close.

Where an Authority has no requirements in respect of a chapter or sub-chapter heading, or where a chapter requirement falls away in Stage 2, the words “NOT USED” should be inserted.

	Chapter Title	Page
1	Introduction	1
2	Project Wide Requirements	1
	2.1 The Project	1
	2.2 Approach to Design	1
	2.3 Minimum Design and Construction Standards and Requirements	1
	2.4 Specific Educational Guidance and Standards	1
	2.5 Hierarchy of Standards	2
	2.6 Information Technology & Building Information Management (BIM)	2
	2.7 Record Information	2
3	General Design Requirements	3
	3.1 General Design Philosophy	3
	3.2 Character & Innovation	3
	3.2.1 Vision	3
	3.2.2 Service Excellence	3
	3.2.3 Architectural Vision	3
	3.2.4 Design Innovation	3
	3.2.5 Recognisable Quality	4
	3.2.6 Internal Environment	4
	3.2.7 Quality Environment	4
	3.2.8 Light, Colour & Texture	4
	3.2.9 Sense of Place	4
	3.2.10 Neighbourhood & Community	4
	3.2.11 Existing Site Users	4
	3.2.12 Site Fit	5
	3.3 Citizen Satisfaction	5
	3.3.1 Design Concept and Aesthetics	5
	3.3.2 Scale, Proportion & Composition	5
	3.3.3 The Arts	5
	3.4 Uses	5
	3.4.1 Service Philosophy	5
	3.4.2 Educational & Non-Educational Functionality	6
	3.4.3 Functional Relationships	6

3.4.4	Manual Handling	6
3.5	Adaptability & Expansion	6
3.6	Spaces	6
3.6.1	Accommodation Requirements	6
3.6.2	Floor Layouts	7
3.6.3	Equipment Requirements	7
3.6.4	Room Data Sheets	7
3.6.5	Interior Design	7
3.6.6	Space Standards	7
3.7	Anti-Vandalism	7
3.8	Security & Control	8
3.8.1	Secured by Design	8
3.9	Accessibility and Inclusion	8
4	Site Specific Requirements	9
4.1	The Existing Site	9
4.2	Site Boundary	9
4.3	Site Safety	9
4.3.1	Retained Estate Site Safety	9
4.4	Programming	10
4.5	Travel Plan	10
4.6	Existing Services	10
4.7	Demolition & Enabling Works Requirements	10
4.8	Phasing / Occupation	10
4.9	Construction Period Requirements	11
4.9.1	General	11
4.9.2	Control of Waste	11
4.9.3	Vehicle Access and Parking	11
4.9.4	Temporary Buildings for the Use of the Authority	11
4.9.5	Protective Clothing	11
4.9.6	Working Hours	12
4.9.7	Deliveries	12
4.9.8	Schedule of Condition	12
4.9.9	Any contingency plans in the event of emergencies	12
4.9.10	Construction Works outside of the Site	12
4.9.11	Control of Noise and Dust	12
4.9.12	Meetings with Immediate Neighbours	13
4.9.13	Meetings with the Authority during Construction	13
4.9.14	Restrictions on Images and Videos during Construction	13
4.9.15	Procedures for reporting any accidental damage or loss of....	13
4.9.16	Site boundary and signage treatment requirements	13
4.9.17	Outside of Site – “Access to Site” signage restrictions	13
4.9.18	Restrictions on Site accommodation	13
4.9.19	Clean Roads and Footpaths	13
4.9.20	Oversailing Activities	13
4.9.21	Workmanship, Construction Accuracy & Tolerances	14
4.10	Site Security	14
4.10.1	Notices	14
4.10.2	Site Security out-with Operational Hours	14
4.10.3	Safety of Authority Related Parties and the Public	14
4.11	Operational Disruption & Continuity of Service	14

4.11.1	[Continuity of the Retained Estate]	15
4.11.2	Continuity of Existing Services	15
4.11.3	Fire Access	15
4.12	Completion Requirements	15
5	General Construction Requirements	16
5.1	Schedule of Life Expectancies	16
5.2	Building Air Tightness	16
5.3	Building Envelope	16
5.4	Acoustics	16
5.5	Authority Testing and Sampling	16
5.5.1	Mock Up Rooms	17
5.5.2	Testing of Samples	17
5.5.3	Build Quality	17
5.6	Integration with Engineering Services	17
5.7	Wayfinding and Signposting	17
5.8	Internal Areas	18
5.9	Ceilings, including Heights & Voids	18
5.10	Floors	18
5.11	Roofs	19
5.12	Walls	19
5.13	Corridor Widths and Heights	19
5.14	Doors and Frames	19
5.15	Vision Panels	20
5.16	Windows	20
5.16.1	Curtain Walling	21
5.17	Finishes	21
5.17.1	General Finishes	21
5.17.2	Walls / Partitions	21
5.17.3	Flooring	21
5.17.4	Finishes Quality	22
5.18	External Materials	22
5.19	Architectural Hardware	22
5.19.1	Ironmongery	22
5.19.2	Locks and Locking	22
5.19.3	Blinds & Curtains	23
5.20	Sanitary Ware	23
5.21	Staircases, Ramps, Balustrades, Walkways, Balconies & Lifts	23
5.22	Protection	23
5.23	Static Discharges	23
5.24	Standardisation & Prefabrication	24
5.25	Materials	24
5.26	Sustainability	24
5.26.1	BREEAM	24
5.27	Energy Strategy	24
5.28	Fire Planning Strategy	25
5.29	Storage of Gas Cylinders	25
5.30	Facilities Maintenance	25
5.31	Pest Control	25

6	Civil & Structural Engineering Requirements	26
6.1	General Requirements	26
6.2	Architectural / Structural Interface	26
6.3	Performance Standards	26
6.4	Loadings & Structural Flexibility	27
6.5	Foundations & Sub-structure	27
6.6	Earthworks	27
6.7	Movement Joints	27
6.8	Building Super-Structure & Envelope	28
6.9	Fire & Corrosion Protection	28
6.10	Durability & Maintainability	28
6.11	Drainage	28
7	External Works	29
7.1	Security	29
7.2	Soft Landscaping Requirements	29
7.2.1	General	30
7.2.2	Planting Areas	30
7.2.3	Soil Preparation & Topsoil	30
7.2.4	Trees	31
7.2.5	Shrubs & Groundcover	31
7.2.6	Planting & Watering	31
7.2.7	Turf	31
7.2.8	Health & Safety Considerations	31
7.3	Hard Landscaping Requirements	32
7.3.1	Synthetic Grass Pitches	32
7.3.2	Hard Surface Games Area	32
7.3.3	Fire Assembly Area	32
7.4	Grass Sports Pitch / Athletics Areas	33
7.5	External Facilities	33
7.6	External Equipment and Furniture	33
7.7	Site Boundary Requirements	33
7.8	Site Access & Circulation	34
7.8.1	Vehicular Access	34
7.8.2	Emergency Vehicle Access	34
7.8.3	Service Vehicle Access	34
7.8.4	Pedestrian Access	34
7.9	Roads, Footpaths, Cycle ways and Car Parking	34
7.9.1	Road Markings & Signage	34
7.9.2	Cycle ways and Cycle Storage	35
7.9.3	Car [and Motor Bike] Parking	35
7.9.4	Disabled / Accessible Parking	35
7.9.5	Drop-off / Pick-up / [Public Transport Access and Stops]	35
8	Mechanical & Electrical Engineering Requirements	36
8.1	Minimum Engineering Standards	36
8.2	Energy Centres and Plant Areas	36
8.3	Engineering Services Interface with Building Fabric	36
8.4	Performance Standards	37
8.4.1	Energy Performance	37
8.4.2	External Design Conditions	38

8.4.3	Internal Design Conditions	38
8.4.4	Thermal Comfort	38
8.4.5	Air Quality	39
8.4.6	Vibration	39
8.4.7	Acoustics	39
8.4.8	Daylight	40
8.5	Incoming Services	40
8.5.1	General	40
8.5.2	Security of Incoming Supplies	40
8.5.3	Provision for Isolation	40
8.6	Mechanical Systems	41
8.6.1	Building Management Systems & Controls	41
8.6.2	Main Water Connection to the Site	42
8.6.3	Site Mains Water, Fire Water, Quality & Distribution	42
8.6.4	Choice of Fuels	43
8.6.5	Gas Installations	43
8.6.6	Heating System	43
8.6.7	Domestic Water Services	43
8.6.8	Hot Water Supply	44
8.6.9	Mechanical Vent, Air Conditioning and Comfort Cooling	44
8.6.10	Combined Heat and Power	44
8.6.11	Laboratory Gases	44
8.6.12	Local Exhaust Ventilation Systems	44
8.6.13	Fume Cupboard & Micro-biological Safety Cabinets	44
8.6.14	Drainage	45
8.6.15	Fuel Storage Tanks	45
8.7	Electrical Systems	45
8.7.1	Main & Sub-Main Distribution	45
8.7.2	Electrical Small Power	45
8.7.3	Lighting	46
8.7.4	Interior Lighting	46
8.7.5	Exterior Lighting	46
8.7.6	Lighting Control & Wiring	47
8.7.7	Emergency Lighting	47
8.7.8	Lifts	47
8.7.9	Clock Installations	47
8.7.10	Disabled Refuge Call System	47
8.7.11	Induction Loop	47
8.7.12	Intercoms	47
8.7.13	Public Address System	48
8.7.14	Sound, Lighting and Entertainment Systems	48
8.7.15	Period Annunciation Systems	48
8.7.16	Cashless Till Systems	48
8.7.17	Electric Vehicle Charging	48
8.8	Security	48
8.8.1	General	48
8.8.2	Alarms & Intruder Detection System	48
8.8.3	Security Access Control	49
8.8.4	CCTV	49
8.8.5	Car Park Barriers	49

8.9	TV & Radio Facilities	49
8.10	Lightning Protection & Earthing	50
8.11	Fire Detection & Suppression Systems	50
8.12	Engineering Flexibility & Zoning	51
8.13	Services Capacity Reserve	51
8.14	Service Routes	51
8.15	Commissioning & Testing	51
9	Information and Communications Technology (ICT) Requirements	53
9.1	Introduction	53
9.2	Overall Requirements	53
9.3	Design Requirements	53
9.3.1	User / Functional Requirements	53
9.3.2	System Availability	53
9.4	Minimum Engineering Standards	53
9.5	Server and Node Rooms	55
9.6	Structured Cabling System	55
9.6.1	Cabling	55
9.6.2	Fibre Optic Cabling	55
9.6.3	Data Patch Panels	55
9.6.4	Data Outlets	55
9.6.5	Ancillaries	55
9.6.6	Telephony tie cables	56
9.6.7	Outlet identification definition	56
9.7	Wireless Network	56
9.8	External Services	56
9.9	Communication & Connectivity with Retained Estate Infrastructure	56
9.10	Programming of Works	56
10	Specialist Services Responsibilities Matrix	57
11	Additional Specialist Requirements	61
11.1	Swimming Pools	61
11.1.1	General Requirements	61
11.1.2	Finishes and Corrosion Protection	61
11.1.3	Engineering Requirements	61

1 Introduction

An Authority should state the Project name and location

2 Project Wide Requirements

2.1 The Project

An Authority should provide a summary of the Project. Consideration to be given to detailing:

- A mission statement – context as to why the project is required;
- Setting of the project in national and local policy; and
- Description of how the project fits in to the national policy of 'Scotland's Schools for the Future' and associated strategic objectives.

2.2 Approach to Design

An Authority should detail its approach to design for the project.

The following examples are issues which may be covered:

- Who will manage the process i.e. the Authority Representative, Senior Responsible Officer and/or Project Board. Detail should include how they wish to engage with Sub-hubCo
- The need for engagement with Authority review teams
- SubhubCo following specific Good Industry Guidance i.e. the Scottish Government/ Convention of Scottish Local Authorities (COSLA) document entitled 'Building Better Schools: Investing in Scotland's Future' which can be found at www.scotland.gov.uk/Topics/Education/Schools/Buildings/commitments and/or exemplar schemes i.e. following the design of the Scottish Futures Trust pilot secondary schools – Lasswade High in Midlothian and Eastwood High in East Renfrewshire <http://www.scottishfuturestrust.org.uk/our-work/education/schools-for-the-future> and all other relevant SFT Education specific publications found here - <http://www.scottishfuturestrust.org.uk/publications/education>
- Any Territory specific design initiatives which should be detailed.

An Authority should also consider the needs of the wider users of the Facilities, for instance where community use is proposed (i.e. for evening classes, public use of swimming pools). Where identified as required, an Authority should consider how the design of the Facilities needs to be addressed to facilitate community user input / stakeholder engagement.

2.3 Minimum Design and Construction Standards and Requirements

The drafting should include a non-exhaustive list of minimum construction standards and requirements for a project. An Authority, with its relevant advisory teams, shall review all standards and requirements respective of the Facilities and the Site. Refer to Appendix C section 1 for suggest list of standards.

2.4 Specific Educational Guidance and Standards

Specific Educational Guidance and Standards are specific Education related guidance and standards which an Authority requires Sub-hubCo to comply with in the design and construction of the Facilities. Refer to Appendix C section 1 for a non-exhaustive suggested list of standards.

In respect to Department for Education Buildings and Design Guidance (Including Building Bulletin documentation), an Authority to consider, with its technical advisors, the appropriateness of each Building Bulletin publication respective of the educational facilities being provided.

An Authority shall further include relevant guidance as required specific to the Facilities.

2.5 Hierarchy of Standards

An Authority should consider the detailing a hierarchy of standards which include:-

- Specific Scottish Educational standards shall taking precedence over equivalent English & Welsh standards, unless agreed otherwise with the Authority.
- Where there is any conflict between two or more standards/documents, the higher standard shall be adopted, unless specifically agreed otherwise with the Authority.

2.6 Information Technology & Building Information Management (BIM)

BIM is a digital representation of physical and functional characteristics of a facility. BIM provides a platform for shared knowledge and resource to help form a reliable basis for decisions on the Facilities design and lifecycle requirements, from conception to demolition.

An Authority shall detail the proposed “Level” of BIM required.

Good practice (and a UK Government target for all projects by 2016) is the provision of BIM to a minimum of "Level 2" as detailed in RIBA's "BIM Overlay to the RIBA Outline Plan of Work" 2012 as detailed here - <http://www.ribabookshops.com/uploads/b1e09aa7-c021-e684-a548-b3091db16d03.pdf>

An Authority may consider detailing the requirements of the level of BIM information provided, and access given to the Authority, during the Project Set-Up, Pre-Construction Information, Construction, Operational and Hand Back phases.

2.7 Record Information

An Authority should consider what record information they require to receive at completion, in what format and in what quantity.

An Authority should discuss with Sub-hubCo how electronic format record information shall be stored. The Authority should consider the requirement for a ‘data room’ for the storage and management of record documents. Data rooms are a secure online database facility which allow managed online access for all invited individuals/parties – usually managed by the Authority with information uploaded by Sub-hubCo. There are usually license fees associated with 3rd party data room systems.

3 General Design Requirements

Chapter 3 sets out the general design and vision requirements of the Authority for the Facilities. In a number of instances, the requirements are subjective, meaning they may fall away from the final contractual document, however should still be stated by an Authority early in the design stage to inform Sub-hubCo of particular Authority and User strategic aims and aesthetical considerations that should be addressed in design solutions.

Such requirements may be available from existing project documents, including the New Project Request or the Outline Business Case, as well as good practice guidance documents.

3.1 General Design Philosophy

An Authority should detail the high level general design philosophy/ethos/requirements specific to the Project. Examples include:

- Requirement for Facilities that ‘enhance the quality, accessibility and range of education services available to the local community’;
- Facilities that are ‘inclusive to all’, ‘appropriate to the local environment’ etc.; and
- Particular sustainable requirements / targets to be met.

3.2 Character & Innovation

3.2.1 Vision

An Authority should detail its vision for the Facilities, now and for the future. Examples include:

- The need for the Facilities to be ‘modern’, ‘safe’ and/or ‘welcoming’; and
- Facilities that ‘signal the high value placed on education.’

3.2.2 Service Excellence

An Authority should detail its design philosophy for the Facilities to enable the provision of excellent service, linked to the specific requirements and educational model for the Facilities as detailed in Sub-Section D. Example:

- How the Facilities design may help meet the ‘Curriculum for Excellence’, by way of reference to, and application of good practice/innovative approaches therein, of SFT’s pilot/exemplar schemes and the ‘Schools Development Handbook’ – referenced in chapter 2 of the template document.

3.2.3 Architectural Vision

An Authority should detail its architectural vision and key architectural component requirements for the Facilities. Examples include:

- How the composition of buildings / interior design / natural light / materials / colours / images etc. should contribute to achieving a stimulating environment etc.

3.2.4 Design Innovation

An Authority should detail its requirement for the inclusion of current and developing innovations in education.

The Authority should state its acceptance, or not, of prototype building elements in the design of the Facilities i.e. the need for all building elements proposed to have been proven in use in existing facilities.

3.2.5 Recognisable Quality

An Authority should outline their requirement for quality of design, for example the requirement for external materials to be detailed and selected to ensure they are resistant and retain their appearance through the Project life within a compatible maintenance regime.

3.2.6 Internal Environment

3.2.7 Quality Environment

An Authority should detail its design philosophy for a quality environment for the Facilities.
An Authority may seek guidance in the Scottish Government's publication 'School Design: Optimising the Internal Environment' 2007, together with the latest versions of the Building Bulletins 'Guidelines for Environmental Design in Schools: Building Bulletin 87'; 'Lighting Design for Schools: Building Bulletin 90'; 'Acoustic Design of Schools: Building Bulletin 93'; and 'Ventilation of School Buildings: Building Bulletin 101'.

Other examples include:

- How spaces may be 'well lit', and 'open';
- How the Facilities shall provide thermal comfort, good air quality and effective acoustics; and
- How spaces may interact within the building and with the external environment, including views out etc.

3.2.8 Light, Colour & Texture

An Authority should detail its design philosophy in respect of the use of light, colour and texture in the Facilities. Examples include:

- How spaces should / may use colour, decoration, art etc. to facilitate an 'identity' for the Facilities; and
- How light, colour and texture shall be co-ordinated in the interior design and building construction to create Facilities that complement the Authority's services (for example bright colours for stimulation in activity rooms and designing lighting to maximise daylight but avoiding glare in teaching spaces).
- Urban & Social Integration

3.2.9 Sense of Place

An Authority should detail its philosophy for the Facilities in respect to creating a 'Sense of Place'. Examples include:

- If the Facilities should provide a frontage to 'stand out' or 'fit in' with the local built environment; and
- The need for Reception areas to be easily identifiable to public, users and staffs.

3.2.10 Neighbourhood & Community

An Authority should detail its philosophy for the Facilities in respect of its fit with the local neighbourhood and community. Examples include:

- How the Facilities should be considered a 'good neighbour' i.e. not dominating the local built environment or detracting from local points of interest

3.2.11 Existing Site Users

An Authority only requires this section where there are operations or Services upon the Site prior-to or during construction i.e. the heading and drafting is not relevant to green field sites.

Where existing site users are identified, an Authority should consider its requirements to maintain a quality environment where they may be affected by the Works. Further detail may be provided in chapter 4 of this Sub-Section C.

3.2.12 Site Fit

An Authority should detail its requirements for how the Facilities building and landscaping design should fit within the Site. Examples include:

- How the Facilities should interface with the local built and natural environment/landscape.

3.3 Citizen Satisfaction

3.3.1 Design Concept and Aesthetics

An Authority should consider the philosophy for the Facilities design to provide staff, user, visitor and public satisfaction. Examples include:

- How the Facilities should exploit local environmental qualities (views etc.); and
- How the Facilities should enhance the local environment via its form and aesthetics.

3.3.2 Scale, Proportion & Composition

An Authority should consider how the Facilities form should be expressed. Examples include:

- How the building composition should (or not) express the buildings function; and
- How functional parts of the building (stair towers, plant rooms etc.) should express form but not detract from the overall building design.

3.3.3 The Arts

An Authority should consider its requirements for the integration of art into the architecture and landscape of the Facilities. Examples include:

- The need for interfaces in Sub-hubCo's design to accept Authority artwork i.e. whether student artwork shall be presented and where this needs to be considered in Sub-hubCo's Proposals.

An Authority should further consider any requirements for an 'Arts Co-ordinator' or similar position, and detail how this person/team should be integrated with the project development and Facilities design.

3.4 Uses

3.4.1 Service Philosophy

An Authority should consider providing a summary of the services activities to be undertaken in the Facilities. This may be provided in bullet point form.

An Authority should provide a reference to Sub-Section D which will set out the full service philosophy for each activity of the Facilities.

3.4.2 Educational & Non-Educational Functionality

An Authority should list the needs of the Facilities to enable Educational and Non-Educational functionality.

Examples being that the Facilities shall:

- Function efficiently, effectively and economically to achieve the optimum balance between capital cost of the Facilities and the Authority's operating costs and to meet and satisfy all of the requirements and obligations set out in these Authority's Constriction Requirements to ensure that the Facilities are sustainable well into the future and as a minimum for the whole of the Operational Term;
- Minimise the Authority's operating costs;
- Demonstrate that the design fully reflects the individual needs for each user group in terms of access, functional relationships and planning; and
- Interface easily with other service providers in particular the wider services provided by the Authority.

3.4.3 Functional Relationships

An Authority should ensure the Adjacency Matrices, as detailed within the template Sub-Section D (Specific Educational Requirements), are completed, or reference to such matrices amended within the template drafting.

3.4.4 Manual Handling

The Authority should outline how sub-hubco should comply with Manual Handling Operations 1992.

3.5 Adaptability & Expansion

An Authority should consider specific requirements for adaptability and any future expansion of the Facilities.

For example, an Authority should consider whether it is likely that foreseeable policy, service advancements and technological changes may impact on the operation of the Facilities, and whether there is a requirement for particular areas of the Facilities to enable physical internal layout re-arrangement and/or building services changes during its lifetime. An Authority should further consider whether expansion zones are required to be identified.

Where potential physical / services re-arrangement for particular areas of the Facilities is identified by an Authority, an Authority should list the locations of such areas within this chapter, for discussion with Sub-hubCo during the early design stages.

Drafting shall also be included to obligate SubhubCo to provide an 'Adaptability Strategy' as part of Sub-hubCo Proposals which shall address the way in which the structural grid, construction technique, structure, service penetrations and engineering services strategy has been designed and co-ordinated for the highlighted areas to enable expansion, adaptation and flexibility.

3.6 Spaces

3.6.1 Accommodation Requirements

An Authority should include the Schedule of Accommodation within the Appendices of the document.

An Authority should consider an allowable variation of the briefed area, subject to SubhubCo proving the functionality of each room. For example, a 5% increase or decrease per room, but no reduction in net departmental areas.

3.6.2 Floor Layouts

The Authority should state its requirement for floor layouts comply with all associated adjacency and occupational requirements. The Authority should ask that the proposals seek to delivery efficiencies within the project.

3.6.3 Equipment Requirements

An Authority should consider its requirements for the environmental, interface and construction requirements that Sub-hubCo should consider for Equipment. Reference should be made to the Equipment list in Schedule Part 11 of the Project Agreement.

An Authority should consider its requirements for Equipment to operate efficiently, effectively and with their intended function for its design life. Furthermore, an Authority should consider:

- Specifying the needs for any specialist equipment required in the Facilities, for example increased structural loading in certain rooms and provision of dedicated associated ‘strong access routes’ for particularly heavy equipment.
- The need for Authority involvement in the choice of certain items of equipment, and whether or not to provide output specifications within Schedule Part 11 (Equipment) where there are benefits to the Authority in doing so i.e. standardisation, compatibility, staff familiarity and particular requirements for product quality

3.6.4 Room Data Sheets

An Authority to make reference to Sub-hubCo providing Facilities which meet the requirement of the Room Data Sheets in Schedule Part 6 Section 6 of the Project Agreement. An Authority should have sight and input to such requirements.

3.6.5 Interior Design

An Authority should consider its requirements for Sub-hubCo to provide an interior design strategy for the Authority’s review and comment, provided in sufficient time for consultation with Users and for incorporation in to the final scheme.

In addition to an Interior Design Strategy presented by Sub-hubCo, an Authority should also refer to Section 5 (Reviewable Design Data (RDD)) of Schedule Part 6 (Construction Requirements) which will set out an Authority’s requirements in relation to what aspects of detailed design it wishes to see Post-Financial Close, and in what format i.e. samples/images.

3.6.6 Space Standards

An Authority should consider its space standard requirements for the Facilities. Examples:

- If there is a need to provide increased internal and external spaces over areas prescribed in codes of practice, regulations and guidance in order that the appropriate provision of space in particular areas supports the Authority’s operations
- How spaces should interface to offer improved function, such as access to external areas or provision of space for informal break-out and discussion from particular areas etc.

3.7 Anti-Vandalism

An Authority should request that sub-hubCo consider measures to limit vandalism risk as far as practicable possible. Sub-hubCo shall also comply with the requirements contained within Sub-Sections D and E of Section 3 (Authority’s Construction Requirements) of Schedule Part 6 (Construction Matters) in determining the extent and scope of these measures.

3.8 Security & Control

An Authority should detail particular security and control issues relative to the Facilities i.e. particular concerns associated with certain areas of, or access to, the Site, such as routes likely to be used during the hours of darkness.

Particular design requirements, for example Access Control and CCTV are covered in Chapter 8 of this Sub-Section C

3.8.1 Secured by Design

An Authority should confirm the relevant Local Police Force's reporting person for the project.

3.9 Accessibility and Inclusion

An Authority should consider and detail particular aspects of the physical environment relating to the accessibility of the Facilities. Examples for consideration include:

- Clearly identifiable entrances to promote ease of wayfinding;
- Access to buildings, such as level or ramped entry;
- Emergency evacuation arrangements, in particular for the visually impaired and the disabled, such as fire refuges or alternative escape routes for people with mobility impairments;
- The accessibility of external paths and landscaping and the location of "rest areas" on all external routes;
- Circulation within buildings, including their interior layout;
- Effective lighting and signage (principles included in the 'Sign Design Guide – a guide to inclusive signage', which is jointly published by the Sign Design Society (SDS) and the Royal Institute of Blind People (RNIB));
- Colour or tone contrast on doors to aid orientation;
- Desks, work surfaces and reception desks at varying or flexible heights;
- Appropriate seating;
- Accessible toilets; and
- Convenient and controlled proximity parking.

4 Site Specific Requirements

Chapter 4 sets out the Authority's Site and construction period specific requirements. Construction period requirements take the form of simplified preliminaries which Sub-hubCo shall follow, as a minimum, in delivering the Project. In completing chapter 4, an Authority may seek additional guidance from its estate team and/or technical advisors.

4.1 The Existing Site

An Authority should provide information on the existing Site, including, but not limited to:

- Approximate area;
- Any Retained Estate;
- Existing local buildings and interlinking structures;
- Access to and on to the Site; and
- General condition of the land.

4.2 Site Boundary

An Authority should provide and make reference to Site Status/Redline Site Boundary drawings for the Works to provide clarity of what constitutes the DBFM Site and what constitutes retained Authority Estate or public land.

4.3 Site Safety

An Authority should consider detailing its requirements for Site safety including:

- Segregation of building works from 'live' Authority or neighbour activities
- Site inspection and reporting requirements, including periodic Authority meetings/briefings
- Any specific Site safety requirements as required i.e. particular induction requirements and any specific requirements of an Authority's Health and Safety Officer, or similar persons.

4.3.1 Retained Estate Site Safety

This chapter should only be considered for Sites where the Authority retains land, operations, services and personnel adjacent or local to the Site.

An Authority should consider detailing its requirements for Retained Estate Site Safety including:

- Any segregation of the Works from Retained Estate activities/infrastructure/ access
- Any appointment of a Retained Estate representative for reviews/meetings with Sub-hubCo on maintaining safety and recording risks and performance
- Process for Sub-hubCo notifying any of work within the Retained Estate to enable the Authority to facilitate the works safely
- Stipulating any background checks required for Sub-hubCo operatives relative to working on an existing Sites with vulnerable users.

4.4 Programming

An Authority should consider its project programme requirements. Aspects an Authority should consider include:

- The format Sub-hubCo should present and report on programme, including the need to highlight specific deliverable dates
- The level of detail programmes should be presented for differing works phases and sub-packages
- Any sequencing requirements of an Authority
- Any set timescale requirements for the Project i.e. when works should/shouldn't be undertaken
- Any programme requirements of the Authority being identified i.e. when Equipment provided by and/or installed by the Authority is required by

4.5 Travel Plan

An Authority should consider its requirements in relation to production of a Travel Plan for the Site and how the Facilities should adapt any particular requirements from this Travel Plan, i.e. cycle routes/storage.

4.6 Existing Services

An Authority should provide and reference any existing services drawings where they are available.

4.7 Demolition & Enabling Works Requirements

An Authority should consider detailing any demolition and enabling works required to be carried out by Sub-hubCo, or any works that the Authority will undertake as part of the demolition and enabling works. Regardless of works undertaken by an Authority, the obligation to ensure the Site is clear and safe should remain Sub-hubCo's responsibility.

4.8 Phasing / Occupation

An Authority should consider, with its technical advisors, any phasing requirements for the Facilities – see sub-chapters below.

i. Beneficial Access

An Authority should consider, with its technical advisors, its requirements in relation to early access to specific areas/elements of the Facilities, such as to facilitate beneficial access to installing ICT hardware [3] months prior to Handover to enable such services to be installed and commissioned in advance of the Handover date etc.

ii. Early Handover

An Authority should discuss and agree early handover of particular areas of the Facilities with Sub-hubCo where this is of benefit to one or both parties.

Where early handover of particular areas of the Facilities are agreed, an Authority should consider the associated needs to accommodate early handover of that element or area and

the Services it will provide, i.e. appropriate car parking or travel arrangements also being in place.

An Authority should further consider on-going works associated with the construction and commissioning of the remainder of the Facilities to ensure they do not impact on the operational capabilities of the initial Services made available to the Authority.

4.9 Construction Period Requirements

4.9.1 General

An Authority to consider its general construction period requirements, similar to setting Preliminary Specification requirements.

An Authority should consider issues in relation to working on a live Site where there shall be an operational Retained Estate, such as Sub-hubCo developing and providing a Disruption Management Plan prior to commencement on Site to mitigate disturbance.

An Authority should consider involvement of Sub-hubCo to conduct site visits for groups of Authority/school staff, students and invited community use representatives during the construction period to permit those persons viewing the progress of the works.

An Authority should further consider opportunities with Sub-hubCo to engage students with a special interest in pursuing a career in a construction related trade or professional discipline to maximise the opportunities available through the delivery of the project.

4.9.2 Control of Waste

In addition to requiring general Good Industry Practice in the control of waste, an Authority should consider, and where necessary detail, any Authority specific waste management procedures which are relevant to the Project / Site.

4.9.3 Vehicle Access and Parking

An Authority to consider its requirements for vehicular access and parking during the construction stage including any Site traffic management plan requirements, car parking finishing/material requirements and restrictions on the location of vehicular parking i.e. in designated car parking areas only.

An Authority should consider any Site constraints which may affect construction vehicle activity (maximum size of vehicles etc.) and to obligate Sub-hubCo to approve proposals for such vehicular activity in advance with the Authority.

4.9.4 Temporary Buildings for the Use of the Authority

An Authority should consider the need for on-site office accommodation based on project size and/or potential to use existing local premises as temporary offices – there will be costs associated with the provision/ construction and maintenance of on-site offices by Sub-hubCo which may not be necessary.

4.9.5 Protective Clothing

An Authority should confirm the numbers of visitors at any one time Sub-hubCo should allow provision of PPE for.

4.9.6 Working Hours

An Authority should confirm the requirement for Sub-hubCo to operate within the allowed working hours as specified within the planning permission and any additional restrictions set out by the Authority.

4.9.7 Deliveries

This chapter should only be considered where Authority Retained Estate may be affected. An Authority should detail specific requirements in relation to limiting delivery times to Site, where relevant. Where there are no restrictions, template drafting may be removed.

4.9.8 Schedule of Condition

An Authority should consider its requirement for a schedule of condition for existing properties/infrastructure/areas of the Site. The Authority should confirm that it is Sub-hubCo obligation to:-

- Include for photographic records within the schedule of condition
- Sub-hubCo is to provide full maintenance for all existing paths and pavings
- Sub-hubCo should ascertain location of services and prevent, maintained and prevent damage.

4.9.9 Any contingency plans in the event of emergencies

An Authority should consider any specific issues which may affect Sub-hubCo i.e. fire evacuation policies and muster points for retained live facilities on the Site.

4.9.10 Construction Works outside of the Site

An Authority should consider the obligations of Sub-hubCo for any works outside the Site i.e. notification to relevant authorities, management of the safety of works, costs associated with the works, carrying out works and making good any damaged areas to the satisfaction of others.

4.9.11 Control of Noise and Dust

An Authority should consider its requirement for the management and control of dust and noise over and above Good Industry Practice

Where an Authority shall have a Retained Estate, an Authority should consider the addition of the following mitigation measures to be carried out by subhubCo for Authority review:

- Monitoring proposals, contingency measures and emergency plans, that include an environmental checklist, to monitor and plan the timing of the Works to avoid disruption to activities within the Authority's Retained Estate which must cover:
 - Daily visual inspections and the recording of required environmental actions (e.g. in relation to noise and air borne debris management);
 - Proposals for planning activities in relation to heavy noise or air borne debris (up to 3 day forecast);
 - Details of how the Works shall be programmed to avoid any adverse impact on any part of the existing site. A timetable of works that takes into account all environmental sensitivities, such as noise, airborne debris and other environmental issues which have been raised by SEPA or other stakeholders.

4.9.12 Meetings with Immediate Neighbours

An Authority should consider the requirements for meetings with Neighbours and any structured meeting proposals.

4.9.13 Meetings with the Authority during Construction

An Authority should consider the requirements for meetings with Sub-hubCo and any structured meeting proposals.

4.9.14 Restrictions on Images and Videos during Construction

An Authority should consider the need for Sub-hubCo to gain agreement prior to the use of CCTV cameras, webcams and the like to take images, videos and the like of the Works whether on or outside the Site.

4.9.15 Procedures for reporting any accidental damage or loss of services.

A number of requirements within the sub-chapter are respective of a Site with a Retained Estate only. An Authority should consider, include or omit as relevant.

4.9.16 Site boundary and signage treatment requirements

The Authority should outline any requirements for the display of Authority signboard and any restrictions to Sub-hubco signboard displays i.e. no advertising, prescribed format requirements (NHS standards etc.).

4.9.17 Outside of Site – “Access to Site” signage restrictions

An Authority should consider Sub-hubCo’s requirement to provide adequate route signs to be erected in positions to display the accepted route by persons or vehicles requiring access to and about the Site. These must clearly delineate vehicles from pedestrians with full details to be agreed with the Authority.

Industry standard “Access to Site” signage shall be provided by Sub-hubCo. The location of all signs out with Sub-hubCo’s Site shall be agreed with the Authority prior to installation.

4.9.18 Restrictions on Site accommodation

The Authority set out Sub-hubco responsibility in providing safe and suitable temporary accommodation which includes for temporary connections as is required.

4.9.19 Clean Roads and Footpaths

The Authority should set out Sub-hubCo responsibility to suitably maintain roads and pathways to the site and surrounding areas.

4.9.20 Oversailing Activities

The Authority should set out Sub-hubCo responsibility to:

- *Take all reasonable steps to ensure that the security of the Site and local area is not compromised by the existence of any crane and that all cranes are kept secure and that all reasonable steps are taken to prevent unauthorised access and/or vandalism to all cranes including removing ladders and other means of access thereto when any crane is not in use;*
- *Ensure no crane loads shall be suspended above existing buildings; and*

- *Ensure that at such times as any crane is at the Site but is not in use it is left secure and is parked in accordance with the operating instructions and shall not be parked in a position oversailing buildings unless required for health and safety reasons.*

4.9.21 Workmanship, Construction Accuracy & Tolerances

The Authority should set out Sub-hubCo responsibility to:-

- *Sub-hubCo shall ensure that general workmanship conforms to current revisions of BS 8000: Series “Workmanship on Building Sites”, which covers typical building construction activities. Where specialist design proposals require construction activities outside the scope of this document, Sub-hubCo shall propose specific quality procedures relating to these activities based on Good Industry Practice current at the time, as a minimum.*
- *Sub-hubCo shall ensure that workmanship for all construction and component assemblies is to the highest standards in every respect. Work is to be true to detail with sharp profiles, straight and free from defects, marks, waves or flaws of any nature impairing strength, performance or appearance.*
- *The buildings and the external works shall be designed and set out by Sub-hubCo in accordance with BS 5606:1990 “Guide to Accuracy in Building”, BS EN13670:2009 “Execution of concrete structures” and BS EN 1090:2008 “Execution of steel structures and aluminium structures. Technical requirements for steel structures”.*
- *In some situations the tolerances identified in BS 5606 may not be appropriate for the particular elements or combination of elements in the Facilities. Where special levels of accuracy are required in relation to Sub-hubCo’s proposals these shall be stated by Sub-hubCo. Sub-hubCo shall consider the recommended procedure set out in Figure 8, Section 3, Appendix B, of BS 5606.*
- *Sub-hubCo shall identify critical dimensions and setting out points on all its drawn information.*

4.10 Site Security

The Authority should set out Sub-hubCo responsibility to secure the site.

4.10.1 Notices

An Authority should set out Sub-hubCo’s responsibility to publish all public notices i.e. prohibited public access notices.

4.10.2 Site Security out-with Operational Hours

An Authority should set out Sub-hubCo’s responsibility to secure the site out-with Operational hours.

4.10.3 Safety of Authority Related Parties and the Public

The Authority should set out Sub-hubCo responsibility to secure the site.

4.11 Operational Disruption & Continuity of Service

The Authority should set out Sub-hubCo responsibility to:-

- *Ensure that safe and secure access for staff, users, visitors and all persons requiring access to the Facilities and / or Site is maintained at all times.*
- *Plan and execute the construction of the Facilities such that, at all times, continuity of all of the Authority’s operational service is maintained. This applies to completed elements of the*

Facilities (i.e. whilst other elements of the Facilities remain under construction and / or are being commissioned).

- *Sub-hubco shall ensure that all reasonable safeguards are incorporated to provide continuity of Utilities supplies to the Facilities at all times. Utility supplies include, but are not limited to, gas, electricity, water, sewerage and communications services.*

4.11.1 [Continuity of the Retained Estate]

This sub-chapter is relevant to Sites with a Retained Estate only. An Authority should consider, include or omit as relevant.

4.11.2 Continuity of Existing Services

The Authority should set out Sub-hubCo responsibility to:-

- Sub-hubCo shall plan and execute the Works to ensure that the operational continuity of the immediate neighbours to the Site is maintained at all times.
- Sub-hubCo shall ensure that all reasonable safeguards are incorporated to ensure continuity of Utilities supplies to the adjacent users of the Site in-so-far as they may be affected by the Works. Utilities supplies include, but are not limited to, gas, electricity, water, sewerage and communications services

4.11.3 Fire Access

An Authority should set out Sub-hubCo's responsibility to:-

- *Ascertain the required access routes for the fire brigade and those routes that are to be kept open and maintained throughout the Project Term including nights and weekends. Work affecting existing fire hydrants and associated mains is to be kept to a minimum, notified in advance to the Fire Authority.*
- *Clearly demonstrate with design proposals any temporary vehicle and pedestrian management required including any proposals for the temporary re-routing of access roads and footpaths in order to ensure continued operation of the area local to the Site. Sub-hubCo shall define and seek agreement with the Authority of any proposals relating to the operation of the vehicles access and footpath during construction.*

4.12 Completion Requirements

An Authority should further consider, in line with its technical advisors, the adoption of the BSRIA Soft Landings initiative in regard to the Completion Requirements and discuss the implementation with Sub-hubCo if this is going to be pursued.

5 General Construction Requirements

Chapter 5 sets out the general construction requirements for the Facilities, most notably the Architectural and elemental design requirements. In completing chapter 5, an Authority may seek additional guidance from its estates team and/or architectural technical advisors.

5.1 Schedule of Life Expectancies

An Authority should provide a list of relevant building elements and detail expected design/residual lives of each element in line with its requirements and Good Industry Practice. For example, external finishes to be selected for 25 year life expectancy, building services systems life expectancies to be to CIBSE Guide M for each element.

Design lives/residual lives should be reviewed with the Authority's technical advisors and Sub-hubCo for relevance to Service Level Specification performance and lifecycling implications up to and at Handover.

5.2 Building Air Tightness

An Authority should set out Sub-hubCo's responsibility for:

- Testing air tightness and any targeted performance requirements
- Conditions upon which the tests should be carried out with reference to relevant guidance (CIBSE TM23)

5.3 Building Envelope

An Authority should consider its requirements for the Building Envelope including:

- Consideration of specific thermal/solar performance requirements
- Any specific cleaning/maintenance performance requirements for the Building Envelope i.e. resilience of the detailing/material selection to undertake such tasks.
- Detailing to mitigate damage/climbing

An Authority should further consider any local Site issues which may affect the building envelope i.e. the need for a building to discourage nesting of birds where they are particular prevalent (for example gulls local to coastal regions).

5.4 Acoustics

An Authority should set out Sub-hubCo's responsibility to deliver a project which aligns to its acoustic requirements, for example any particular rooms/areas requiring specific acoustic performance/confidentiality criteria (atria, performance spaces, halls). Possibly overlap with chapter 8.4.7 of Sub-Section C.

5.5 Authority Testing and Sampling

This chapter must be reviewed by an Authority and its technical advisors specific to the Facilities needs and economic viability.

5.5.1 Mock Up Rooms

An Authority should consider, with its technical advisors, rooms which they need to see ‘mocked-up’ prior to acceptance. An Authority should consider rooms that are most prevalent within the Facilities, or are of particular importance to an Authority. For example a typical classroom(s).

Consideration should be given by an Authority as to where and when room mock-ups are to be provided. It is suggested these rooms are provided prior to Financial Close such that the Authority can review the constructed rooms prior to finalising costs of the Facilities.

In smaller projects, mock up rooms may be unnecessary whereby samples only may satisfy the Authority’s requirements.

5.5.2 Testing of Samples

Tests must be specific to the needs of an Authority. Typical examples of products to be tested, with associated tests to be carried out, are provided below for Authority consideration.

Product	Tests to be carried out
<i>Typical Door Furniture and locks (including depressible stops, hinges, self-closing devices and electro-magnetic hold open devices as appropriate)</i>	<i>Robustness / ease of operation</i>
<i>Typical window units</i>	<i>Robustness (inc. weather tightness) / ease of operation (opening)</i>
<i>External glazing</i>	<i>Aesthetics / robustness</i>
<i>Sanitary ware</i>	<i>Robustness security of fittings / suitability for users</i>
<i>Ceilings</i>	<i>Robustness/ acoustic performance</i>
<i>Internal walls / stud partitions system</i>	<i>Robustness / acoustic performance</i>
<i>Ventilation and other grilles</i>	<i>Robustness</i>
<i>Small power and light fittings and controls</i>	<i>Robustness</i>
<i>Signage, floor and wall finishes</i>	<i>Robustness / suitability for location / aesthetics</i>

5.5.3 Build Quality

An Authority should set out Sub-hubCo’s responsibility in the timely provision of samples/mock up rooms, the quality of samples being those to be provided/built as part of the Facilities and making good of proposals once tested.

5.6 Integration with Engineering Services

An Authority should set out its requirements of integration of engineering services with the architecture, for example the concealing of services as far as practicable, services locations being such that maintenance minimises disruption to the Authority and ensuring secure and safe access to services where access is required.

5.7 Wayfinding and Signposting

An Authority should set out its requirements for wayfinding and signposting. In consideration with its technical advisors, an Authority may consider the following in respect to Wayfinding and Signposting requirements for the Facilities:

- Interfacing of wayfinding and signposting with an Authority’s Retained Estate and buildings local and adjacent to the Site];
- The need for safe, secure and pleasant journeys (views out, use of artwork etc.)
- Use of signposting to support an identity and aid orientation and wayfinding;

- The need to have door signage which may enable interchange of title information, should room functionality change during the Project Term;
- The need for way finding to meet the needs of different groups of people visiting or making deliveries to the Facilities, including service delivery purposes and contractors;
- The need for particular standards of external signage, including car parking management;
- Provision of wayfinding and signage to be inclusive for all i.e. which address the needs of people with impairment in touch, sight, sound or literacy. Non-specialist language shall be used, including consideration of using iconic and pictorial as alternative methods to written word;
- Special consideration to the identification of signs in the support for learning area shall be made so that they meet the needs of users requiring additional support;
- The need to provide a large sign at the main site boundary with Authority information; and
- Incorporation of the Authority's corporate symbols and colours.

5.8 Internal Areas

An Authority should set out Sub-hubCo's responsibility ensure the internal areas:-

- Sub-hubCo shall ensure that the internal areas of the buildings allow access for the appropriate maintenance / cleaning systems and equipment utilising the hierarchy of control measures included within the Work at Height Regulations 2005 as amended.
- Sub-hubCo shall take full cognisance of the maintenance and cleaning requirements detailed in Sub-Section D and Sub-Section E of Section 3 (Authority's Construction Requirements) of Schedule Part 6 (Construction Matters) and shall provide design solutions accordingly.

5.9 Ceilings, including Heights & Voids

An Authority should consider its requirements for ceilings. Aspects for consideration, for review with technical advisors, may include:

- Stating minimum clear ceiling heights for specialist rooms and areas to accommodate specialist functions/functions
- Co-ordination of services and location of access points/Equipment to be provided on reflected ceiling plans for the agreement of the Authority, particularly in highly serviced/specialised areas
- Using a proprietary suspended plasterboard system in areas demanding specific hygiene criteria, for example treatment rooms; and
- The need for ceiling designs to be 'anti-ligature' where appropriate to the Facilities, for example avoidance of tile and grid ceiling solutions in mental health service settings.

5.10 Floors

An Authority should consider its requirements for Floors. Aspects for consideration, for review with technical advisors, may include particular areas requiring higher imposed loadings and particular vibration control for specific areas based on activities being undertaken and Equipment used.

Floor finishes requirements are further addressed in chapter 5.17.

5.11 Roofs

An Authority should consider its requirements for Roofs. Aspects for consideration, for review with technical advisors, may include penetrations being minimised, edge and eave detailing mitigating the ability for climbing, coverings being easy to maintain and detailing minimising acoustic issues.

Acoustic Design of Schools: Building Bulletin 93' sets out acoustic levels for roof construction acoustic performance.

5.12 Walls

An Authority should consider its requirements for Walls. Aspects for consideration, for review with technical advisors, may include robustness and acoustic properties of walls, material selections allowing mounting of items in specific areas, flexibility for demounting/raising partitions in specific areas.

Wall finishes requirements are further addressed in chapter 5.17.

5.13 Corridor Widths and Heights

An Authority should consider its requirements for corridor widths and heights. Aspects for consideration, for review with technical advisors, may include:

- The need for a minimum width within particular corridors, and/or the need for a minimum width along the length of particular corridors;
- The need for straight corridors to aid visibility, or the need for angles in corridors to provide interest to long walkways;
- The requirement for the avoidance of sharp corners;
- The requirement for mitigating/removing column protrusion in corridors;
- The need for informal seating in main circulation areas, and/or resting points along the travel length; and
- The need for corridor widths to consider the flow of students between lessons and avoid pinch points in the design solution.

5.14 Doors and Frames

An Authority should consider the following requirements in respect to doors and frames in the Facilities:

- Minimum door width requirements in specific areas of the Facilities for specialist activities.
- Level access at particular areas/locations;
- Acoustic performance;
- Specific construction requirements for doors in specific areas of the Facilities i.e. differing levels of robustness/security requirements i.e. need for laminated or toughened glass used in doors.
- Access control requirements to the Facilities, including electronic access control suiting requirements. Further consideration required as to master key requirements and an agreed quantity of sub-master suites to facilitate the required security zoning within the Facilities.

- Utilisation of 'hold-back' electro-magnetic devices on circulation routes and on fire doors to aid movement.
- Provision of light pressure delay check door closers to self-closing doors.
- Use of draught lobbies to minimise draughts and heat loss at main entrance doors.
- Separation of external doors for deliveries, their size and nature designed to suit the needs of the Facilities.
- Need for safety devices or anti-ligature design requirements in specific areas of the Facilities, such as finger protectors and or sloped door frames.
- Need for door ironmongery design to prevent young children opening doors in any areas in the Facilities

5.15 Vision Panels

An Authority should detail where vision panels are required in the Facilities, for instance all doors other than those to stores, toilets and changing facilities.

An Authority should consider the needs to obscure vision panels for privacy reasons in particular locations i.e. use of interstitial blind systems. Consideration is required as to who may operate the privacy control and how i.e., staff only, lockable from outside the room.

5.16 Windows

An Authority should consider its requirements for windows in the Facilities.

Particular attention should be made to daylight maximisation to contribute to a quality internal environment and minimise reliance on artificial lighting. It is recognised however an Authority may wish to deviate from these proposals given particular operational requirements in some areas. Where this is the case, an Authority should list such areas where daylight should not be provided or should be minimised.

An Authority should consider the following in respect to window requirements in the Facilities:

- Obscuring glass to Toilet areas, Changing Rooms, Shower areas and rooms containing confidential activities.
- Security rating and anti-vandalism measures required, particularly for specialist areas
- Openability of windows i.e. which areas may/may not have openable windows and to what extent they may open
- How window openings may be controlled i.e. handles and control gear in easy to operate locations / only specific Users may have access/control
- Background ventilation requirements
- Acceptance, or not, of UPVC frame solutions.
- Need for glazed elements to be accessible for cleaning from the inside.
- Designing out glare to permit the use of computers, projectors, legibility of writing on white/smartboards etc. from all parts of specific rooms/areas.

5.16.1 Curtain Walling

An Authority should consider the following in respect of curtain walling:

- Curtain walling to be to the same specification as general windows;
- The need for curtain walling to have sloping sills; and
- Specific wall frame fabrication requirements i.e. need for aluminium framing given the size and weight of such construction

5.17 Finishes

5.17.1 General Finishes

The Authority should set out Sub-hubCo's responsibility in the selection of materials which are suitable and deliver the operational requirements. Reference can be made to project specific requirements and relevant building standards.

5.17.2 Walls / Partitions

In addition to the template drafting, an Authority should consider the following requirements in respect to wall finishes in the Facilities:

- Need for partitions in particular areas to be non-loadbearing, where feasible, to aid future flexibility in design.
- Finishes needing to be smooth, durable and easily cleaned
- Levels of performance for particular areas of Facilities. For example, high impact plaster finishes to BS EN 13279-1 in areas of the Facilities which may be subject to improper use/damage.
- Acceptability, or not, of papered or tiled walls/partitions within the Facilities

5.17.3 Flooring

An Authority should carefully consider detailing areas in the Facilities require an enhanced floor finish performance, for instance gymnasiums, fitness studios etc. such that Sub-hubCo may specify/design the flooring to suit the particular areas function.

An Authority should consider floor slip resistance requirements and set a "Pendulum Test Value" and a "R surface micro-roughness (microns μm)". Guidance may be sought on the HSE's website - http://www.hse.gov.uk/slips/Step/general/advanced/8E7F777B-3B84-49FE-A3D6-D0324E25A801/HSLCourseTemplate/28531/introduction_28709.htm

In addition, an Authority should consider the following requirement examples for floor finishes:

- Suitability for the use of each area, robust, durable, scuff resistant and easily cleaned;
- Care must be taken in the selection of the appropriate soft floor coverings;
- Where carpets are proposed, Sub-hubCo shall provide impervious backing;
- In any one area Sub-hubCo shall ensure only coverings from the same production batch is used to avoid patchiness and/or colour variation;
- Loose laid barrier matting shall not be permitted;
- Welds along the length of a corridors shall not be permitted;

- Visually contrasting texture flooring surfaces must be utilised, wherever appropriate, as an integral part of the way-finding strategy;
- Zero profiles shall be required at external access points, including access routes to any garden/courtyard areas;
- Joints, where required, between rooms shall be situated on the door centre;
- All joints between sheet floor finishes and between cove skirtings are to be hot seam welded with care taken particularly at doorways (all welded joints and set in coves, no open joints or sit on cove);
- Vinyl finishes must be turned up at skirting level with cove formers which is sealed at the top edge with an approved manufacturers mastic; and
- Early cognisance must be taken in the positioning of construction joints in flooring bases to avoid seams in floor finishes in the centre of rooms or circulation areas.

5.17.4 Finishes Quality

An Authority to consider the need for 'Hold points' to check finishes quality, proposal to be discussed with Sub-hubCo during Stage 2 programme development.

5.18 External Materials

The Authority should set out Sub-hubCos responsibility in the selection of materials which are suitable and deliver the operational requirements. Reference can be made to project specific requirements and relevant building standards.

5.19 Architectural Hardware

An Authority should consider the following sub-chapters relating to Architectural Hardware. Particular focus should be paid to the type and location of electronic door access/security requirements, which may be further detailed in chapter 8 of Sub-Section C.

5.19.1 Ironmongery

An Authority should consider the following in respect of ironmongery within the Facilities:

- Provision of kick plates to protect the base of doors to a minimum height above finished floor level.
- Need for push plates and pull handles on corridor doors.
- Need for anti-vandal type fittings in specific areas.

5.19.2 Locks and Locking

In common with window design, the locking/security strategy for the Facilities shall require close consideration and liaison between SubhubCo and the Authority Team.

An Authority should consider the following in respect to locks and locking in the Facilities:

- Which doors in the Facilities require proximity card/electronically activated locking mechanisms (for example, main entrances, corridors, department entrances, secure rooms).
- Which doors in the Facilities require deadlocks (for example Plant rooms);
- Specific requirements of locks to suit function of rooms (for example thumb turn locks to prevent locking shut classrooms from within the room);

- Which doors require override control of locks; and
- Level of lock suiting and sub-suiting within the Facilities to each unit and department.

5.19.3 Blinds & Curtains

An Authority should consider the following in respect to blinds and curtains in the Facilities:

- Where blinds and curtains are deemed acceptable, or not;
- Material and finish selections to be considered as part of the interior design strategy proposals;
- Control gear not to conflict with window openings;
- Specific requirements/types of tracks to be used;
- Where there is a need for particular blind/curtain control to control glare for PC use; and
- Where there is a need for complete black out in areas, and design of blinds/curtains to suit, in order to allow audio visual presentations and experiments in specific areas of the Facilities

5.20 Sanitary Ware

An Authority should consider the following in respect to sanitary ware within the Facilities:

- Whether sanitary ware may or should incorporate water saving devices i.e. automatic sensor taps, push-button taps, low flush cisterns etc.
- Requirement for Female toilets to be provided with sanitary disposal units.
- Requirement for concealed plumbing and cisterns to be behind an Integrated Plumbing System (IPS) of durable and robust specification. (IPS surfaces readily cleansable and incorporate smooth, rounded edges).
- Requirement for sanitary ware to be robust and vandal resistant with tamper-proof fittings.
- Requirement for splash backs at all hand washing locations.
- Acceptability or not of shower curtains. Where accepted, the need for shower curtains to be mould-resistant and provide privacy for users.
- Vandal resistance requirements, and any particular areas of focus for such requirements.

5.21 Staircases, Ramps, Balustrades, Walkways, Balconies & Lifts

An Authority should consider its requirements in respect of staircases, ramps, balustrades, walkways, balconies & lifts to meet operational requirements. Particular issues relating to accessibility for all and movement of Equipment/people through the Facilities should be explored.

5.22 Protection

An Authority should consider wall protection and heights specific to the needs of the Facilities operations and or Equipment within the Facilities.

5.23 Static Discharges

An Authority should set out Sub-hubCos responsibility to minimise static charge including:-

- Sub-hubCo shall seek to eliminate, by choice of material coupled with control of the environment the release of static charge.

- All floors within Comms/Hub/Server rooms shall be antistatic. The flooring and pedestals that the antistatic flooring sit upon shall to comply with BS EN 50310:2006.

5.24 Standardisation & Prefabrication

An Authority should consider the use of standardised / prefabricated elements and building components to achieve good quality control, ease and speed of installation and flexibility for future use is welcomed. Their use shall not constrict the Authority from achieving [Operational Functionality] and offering value for money.

5.25 Materials

An Authority should set out Sub-hubCo's responsibility in the selection of materials which are suitable and deliver the operational requirements. Reference can be made to project specific requirements and relevant building standards. Specific material selection restrictions should be identified.

5.26 Sustainability

An Authority should consider specific sustainability requirements relating to the Project, Local Authority requirements and/or additional stakeholder requirements. Issues for consideration may include requirements to maximise biodiversity and minimise waste and dependence on polluting fuels.

5.26.1 BREEAM

An Authority should consider, with its technical advisors, the BREEAM requirements, including an overall rating, for the Facilities based on project specific requirements (including funding scheme requirements) and Planning Permissions. This should be balanced against the value for money any proposed rating delivers.

5.27 Energy Strategy

An Authority should consider, with its technical advisors, the following requirements of subhubCo in respect to the Energy Strategy for the Facilities:

- Minimise direct solar gain to avoid air conditioning/comfort cooling;
- Maximise daylight factors;
- Appropriately specify Plant and services to maximise utilisation and efficiency;
- Appropriately specify energy efficient equipment and fittings;
- As far as practicable, plan buildings such that natural draught free ventilation can take place in a controlled manner, therefore obviating or reducing the need for mechanical ventilation;
- Optimise the orientation of each space to suit its function while considering the impact on the internal environment, in particular maximum/ minimum room temperatures and glare;
- Provide high levels of metering and sub-metering of Utilities and energy consumption, in line with Good Industry Practice and to enable billing of 3rd parties / departments / users as appropriate to Authority operation;
- Provide high levels of appropriately designed building fabric insulation to reduce heat losses and hence reduce required heating requirements;
- Provide controls for heating, ventilation and lighting for convenient, effective, flexible and efficient control by the building manager;

- Zone the building and its services to enable extensive and flexible controls to reflect the likely multi-user demand for opening sections of the Facilities to suit specific needs, while shutting down unoccupied areas;
- Ensure construction joints are designed and constructed to minimise infiltration to the building with reference made to the guidance specified in the BRE Trust document entitled ‘Airtightness in Commercial and Public Buildings’;
- Incorporate efficient control, re-use and disposal of rain and wastewater;
- Give due consideration to renewable energy sources and low carbon technology within their design proposals; and
- Utilise environmental simulation software (IES, TAS etc.) to inform design process.

5.28 Fire Planning Strategy

An Authority should consider, with its technical advisors, insurance requirements and implications (sprinklers etc.) for fire planning, including relevant Loss Prevention Standard compliance requirements.

5.29 Storage of Gas Cylinders

An Authority should set out Sub-hubCos responsibility to:-

- Sub-hubCo shall ensure that all gas cylinders, whether they are connected to external supplies or not, are stored in accordance with Building Standards.
- Signage must be sited and designed in accordance with the Health and Safety (Safety Signs and Signals) Regulations 1996, BS 5499-10:2006 Safety signs, including fire safety signs - Part 10: Code of practice for the use of safety signs, including fire safety signs and the Health and Safety at Work Act 1974.

5.30 Facilities Maintenance

An Authority should set out Sub-hubCos responsibility to:-

- Providing facilities that ensure that the maintenance and replacement of services, finishes, components, elements, systems, furniture and equipment can be carried out effectively within the requirements of service operations and functionality.
- Provide fixtures and fittings for fire extinguishers.
- Ensure that the access routes within the buildings shall allow access for the appropriate maintenance / cleaning system and equipment utilising the hierarchy of control measures included within the Work at Height Regulations 2005 as amended.
- Ensure that the access routes within the buildings for maintenance / cleaning systems and equipment shall not affect Operational Functionality of educational areas.
- The structural frame, floors and internal walls of the buildings shall be designed by Sub-hubCo to accommodate the loading requirements of access equipment and operatives, where the cleaning and maintenance system uses this method.

5.31 Pest Control

The Authority should set out Sub-hubCos responsibility to incorporate pest control design measures to prevent pest entry to the Facilities.

6 Civil & Structural Engineering Requirements

This chapter 6 sets out the civil & structural engineering requirements for the project. In completing chapter 6, an Authority may seek additional guidance from its estates team and/or Civil and Structural engineering technical advisors.

6.1 General Requirements

An Authority should set out Sub-hubCos responsibility to ensure the civil and structural engineering design:-

- Be co-ordinated with the design of the building fabric, finishes, services, facades, internal walls and medical equipment, including buildings / structures;
- Include the design and construction of any secondary framing necessary for the support of plant, services, or lifting equipment;
- Provide adequate space for the distribution of services, while maintaining the required finished floor levels and the floor to ceiling heights called for in the Room Data Sheets, and elsewhere in this Sub-Section C of Section 3 (Authority's Construction Requirements) of Schedule Part 6 (Construction Matters);
- Provide a clear zone above the ceilings for services to the degree consistent with overall economy for the Authority;
- Provide fire resistance required by the appropriate Building Regulations;
- Be economically adaptable to meet identified changing operational needs;
- Be designed to accommodate maintenance requirements for services, equipment and building fabric; and
- Structural design shall ensure that structures are co-ordinated with the building services distribution philosophy in order to ensure the logical and sequential installation and maintenance of services. For example the use of columns adjacent to vertical service voids shall be minimised.

6.2 Architectural / Structural Interface

An Authority should consider specific Architectural and Civil and Structural engineering interface requirements including:

- Provision of penetrable zones co-ordinated with the framework for partitions and services
- Location and co-ordination of columns in the general arrangement
- Any flexibility/adaptability/expansion detailed in chapter 3.7.
- Flexibility of use of spaces, and the need to make changes over the life of the Facilities.
- Where movement of internal walls is identified as a potential future requirement, an Authority should obligate Sub-hubCo to demonstrate how internal wall to external perimeter wall junctions shall be dealt with in the event of a change to the wall locations in the future.

6.3 Performance Standards

The Authority should cross refer to the requirements outlined within in chapter 2 of this Sub-Section C.

6.4 Loadings & Structural Flexibility

An Authority should consider the loading and structural flexibility requirements of the Facilities, including any requirements to reflect the adaptability and expansion requirements of the Facilities, and requirement for the Facility to be free standing from any other building.

An Authority should consider detailing areas of potential dynamic activity that Sub-hubCo may need to consider adverse harmonic affects and address in their design accordingly. An Authority should set vibration requirements relating to activity and Equipment use.

An Authority should also confirm where lists of Equipment, and specifications/weights where known, will be i.e. RDS or Schedule Part 11 (Equipment).

An Authority should further consider, with its technical advisors, the requirements for the structure to accommodate any ceiling tracking hoist systems, including the requirement for re-configuration, extension and / or retro-fitting of lifting equipment i.e. the whole of the specified area to be structurally capable of accommodating the hoist equipment.

6.5 Foundations & Sub-structure

An Authority should consider its requirements and Sub-hubCo's responsibility for foundations and sub-structure including the need to ensure settlement and differential settlement is limited to ensure no visible distress to the structure or Facilities.

An Authority should consider what existing Site information/surveys/drawings are available, if any, for use by Sub-hubCo as historic information of the Site only. An Authority should further confirm where this information may be found i.e. a data room.

6.6 Earthworks

An Authority should consider its requirements and Sub-hubCo's responsibility for earthworks to ensure that the Site is appropriate for use and free from unsuitable arisings. An Authority should consider where any excavated material may be best re-used on Site, for example in landscaping designs.

6.7 Movement Joints

An Authority should consider where movement joints are not acceptable. Examples below:

- Kitchens and food preparation areas;
- Any other room requiring a sterile environment; and
- Any rooms where there is a risk of biological or other hazard, or risk of penetration by water, grease / oil, or other hazardous or detrimental substance.

6.8 Building Super-Structure & Envelope

An Authority should consider and outline Sub-hubCos responsibility to:-

- Suitable materials are used
- Natural frequency shall be such that vibrations shall not be detrimental to occupants.
- Ability to withstand loads and load combinations imposed on the building, vertical, horizontal, dynamic, temporary etc.;
- Designs must demonstrate compliance with robustness (tieing) requirements of current Codes of Practice and Technical Standards (Scotland) i.e. progressive collapse requirements;
- Provision of movement must be included in designs, horizontal, vertical, shrinkage, temperature effects etc.;
- Vibration sensitive equipment shall be in use throughout the Facilities. Designs must take cognisance of vibration categories;
- Integration of building services with structure shall be a highly important part of the design process. Sub-hubCo shall demonstrate how design coordination shall be achieved;
- All material used in the design of structures shall be compatible with each other and such things as finishes (e.g. Painted); and
- Where any part of the structure is exposed internally, it shall be accessible for cleaning.

6.9 Fire & Corrosion Protection

An Authority should set out Sub-hubCos responsibility to:-

- Sub-hubCo shall provide fire protection to all elements of structure and ensure fire ratings are in compliance with space use Building Regulations requirements.
- Ensure all civil and structural elements shall have a fire resistance in accordance with Regulation 2 of the Building (Scotland) Regulations Technical Handbook.
- Ensure a externally applied fire protection must be durable and in accordance with the design life of the members in question.

6.10 Durability & Maintainability

An Authority should set out Sub-hubCos responsibility to deliver a project which is capable of withstanding potential deterioration due to weather, ground conditions, wear and tear and accidental damage.

6.11 Drainage

An Authority should consider its requirements and Sub-hubCo's responsibility for drainage services, which may include:

- Liaison with SEPA, Scottish Water and other recognised authorities
- Setting specific flood risk design criteria
- Providing Sustainable Urban Drainage (SUD) designs
- Mitigating internal drainage manholes
- And Site specific requirements such as:
 - The need to lock manhole covers within particular areas for security purpose.
 - Any specific specialist waste materials (chemicals etc.) and associated drainage requirement.

7 External Works

This chapter 7 sets out the external (including landscaping) requirements for the project. In completing chapter 7, an Authority may seek additional guidance from its estates team, security team and/or Architectural technical advisors.

As an introduction to External Works, an Authority should list its requirements in respect of what the overall landscaping strategy should deliver. The following proposals are examples for consideration:

- To provide an environment with seasonal interest and attractive usable spaces for all users;
- To take cognisance of the existing landscape and built designations and protect and augment them in a unified landscape design;
- To create an attractive and diverse hard and soft landscape treatment that reflects the status of the Facilities, complements the architecture of the buildings and strengthens the existing landscape character;
- To provide a hierarchy of public and private spaces with appropriate landscape treatment; and
- Provide external recreational space, social space and playing courts (both hard and soft), in line with **sportscotland** design guidance.

An Authority should further consider the following in respect to general external works for the Facilities:

- The effect the external works must have on the Facilities, for example stimulating designs for learning environments;
- Any requirements for biodiversity or nature conservation requirements, or any woodland considerations;
- Any integration with any Retained Estate or local buildings/environments; and
- Detailing any external areas within the Site that shall not be landscaped as part of the works

7.1 Security

An Authority should set out Sub-hubCo's responsibility to deliver proposals which consider external security aspects and issues such as liaison with Local Authority Crime Prevention Officers, providing securely fitted external equipment, mitigating opportunities to scale fences and adopting 'Secured by Design' principles

7.2 Soft Landscaping Requirements

An Authority should consider the following in respect of the principles of the soft landscaping scheme:

- The landscape proposal must aim to provide a vibrant and colourful environment that is reflected through the seasons;
- Plants species specified must be environmentally suitable for the local growing conditions including climate and soils;
- Planting areas must encourage natural growth and maximise the potential for using natural planting features to assist natural drainage;
- Specified plants and materials shall be non-poisonous and non-injurious (e.g. berries, spikes and the like) in public accessible areas;
- Shrub beds, trees and planting areas shall be designed with minimal future maintenance requirements wherever possible;
- The construction, materials and plant selections must be environmentally appropriate;

- Drainage shall be designed to allow safe use of all grounds at all times;
- Shrubbery and planters must be designed to be far enough away from windows to allow access for tower/mobile platforms/ladders etc. to carry out routine maintenance to the roof edges, guttering and wall elevations etc.
- Designs shall accommodate the requirements of BREEAM and the recommendations of the appointed ecologist to improve the ecological value of the Site through introduction of native species; and
- Imaginative soft landscaping proposals for entrances shall be provided beyond the minimum requirements of the local planning authority.

7.2.1 General

An Authority should consider Sub-hubCos responsibility to:-

- Involve the Authority in the decision making process for all proposed planting for the Facilities
- By reference to their own ground investigation data; confirm the need for imported topsoil or whether amelioration of existing soil is sufficient to support their soft landscaping proposals. Sub-hubCo shall then provide new or utilise existing soils, as appropriate.
- Carry out any necessary remedial measures to suit planted areas and hard landscaped areas.

7.2.2 Planting Areas

An Authority should consider Sub-hubCo's responsibility to ensure:-

- Planting plans, together with planting schedules, shall be provided and sufficiently detailed to determine the proposed plant selection, including information on size, species and density. The positive contribution that native species and planting makes to the biodiversity/ wildlife potential of the site must be fully exploited.
- Planting shall incorporate species that provide a range of sensory experiences and a variety of form and colour throughout the year. All plants shall conform to the relevant British Standards. All plants shall be true to form, type, size, healthy, vigorous, pest and weed free. Any failures resulting from inappropriate specification of plant material shall be replaced at Sub-hubCo's own expense. Sub-hubCo shall be responsible for the replacement, to the agreed specification, of any plant failures, until such times as all planting has been fully established.
- Planting (including associated soft landscaping beds) must also be incorporated within hard landscaped areas, particularly adjacent the main Facilities entrance, to provide an attractive and welcoming feature.

7.2.3 Soil Preparation & Topsoil

An Authority should consider Sub-hubCo's responsibility to ensure:-

Soil preparation shall be carried out by Sub-hubCo in accordance with BS 4428:1989, Code of practice for general landscape operations (excluding hard surfaces). The sub-soil formation shall be thoroughly ripped prior to spreading the topsoil layer. Sub-hubCo shall ensure care is taken with the use of weed-killers. Sub-hubCo shall ensure that all topsoil complies with BS 3882:2007, Specification for topsoil and requirements for use.

7.2.4 Trees

An Authority should consider Sub-hubCo's responsibility to ensure:-

- Sub-hubCo shall ensure that any work to existing trees, whether or not covered by Tree Preservation Orders (TPO), shall only be undertaken with the appropriate licence as stipulated by the TPO or with the approval of the Authority.
- Sub-hubCo shall ensure that tree protection complies with BS 5837:2012 – 'Trees in relation to design, demolition and construction – Recommendations'. A register of the existing trees shall be made including giving each a tree a unique number. Before construction commences Sub-hubCo shall take photographic records of the existing trees on and adjacent to the Site. The photographs shall record the trees' unique number. A Site plan shall record the position of the existing trees noting their unique number.

7.2.5 Shrubs & Groundcover

An Authority should consider Sub-hubCos responsibility to:-

- Ensure that all shrubs shall comply with BS 3936 Part 1:1992, and shall be planted to BS 4043:1989.
- Sub-hubCo shall ensure that shrub and groundcover protection complies with BS 5837:2012 – 'Trees in relation to design, demolition and construction – Recommendations'. A register of the existing shrubs and groundcover shall be made including giving each a shrub and area of groundcover a unique number. Before construction commences Sub-hubCo shall take photographic records of the existing shrubs and areas of groundcover on and adjacent to the Site. The photographs shall record the shrubs and areas of groundcover's unique number. A Site plan shall record the position of the existing shrubs and areas of groundcover noting their unique number.

7.2.6 Planting & Watering

An Authority should consider Sub-hubCos responsibility to ensure that planting and watering is carried out while soil and weather conditions are suitable for relevant operations.

7.2.7 Turf

An Authority should set out Sub-hubCos responsibility to:-

- Sub-hubCo shall ensure that turf is in accordance with BS 3969:1998 + A1:2013 – 'Recommendations for Turf for general purposes'. Turf shall be free from undesirable grasses and weeds.
- Sub-hubCo shall avoid grass in any proposed courtyards, unless the courtyard is very large. If provided Sub-hubCo must ensure there is a suitable, sufficiently wide access away from occupied areas for bringing mowing machinery to the turfed areas.

7.2.8 Health & Safety Considerations

An Authority should consider Sub-hubCos responsibility to:-

- Sub-hubCo shall ensure that all weed-killer / pesticides and herbicides and any other chemicals used in association with the landscape works preparation comply with SEPA regulations, the COSHH Regulations, and any other relevant regulations.

7.3 Hard Landscaping Requirements

An Authority should consider the following examples requirements for the Hard Landscaping scheme:

- Provision of access for hardstanding for emergency and delivery vehicles;
- Provision of access for building maintenance and window cleaning;
- Provision of access and circulation for users both on foot, bicycles, in cars or on public transport;
- Provision of parking for vehicles and bicycles including disabled facilities;
- Provision of drop-off facilities [including lay-bys and bus/transport stops];
- Provision of accommodation for building services plant, waste and materials management, as appropriate;
- Protect against noise and environmental pollution;
- Provision of security measures, such as CCTV and external lighting, as appropriate;
- Provision of appropriate Site boundary treatment;
- Provision of walls, fencing, gates / barriers and hedgerows as appropriate along the Site Boundary and at particular locations inside the Site;
- Provision of suitable means of shelter against adverse weather conditions at entrances, [bus / transport waiting], and drop off locations and covered links provided, as appropriate;
- Provision of vehicle access barriers, as appropriate;
- Inclusion of fire hydrants and waste receptacles in appropriate locations.
- Use a variety of materials to provide an assortment of tactile experiences and transitions from one type of activity to another;
- Use, where possible, locally derived materials; and
- Introduce colour and interest.

An Authority should further consider the following specific examples for the Facilities in respect to Hard Landscaping requirements:

- Inclusion of any external dining areas;
- Provision of external shelter features;
- Any 'overspill' parking requirements ;and
- Any smoking area requirements.

7.3.1 Synthetic Grass Pitches

An Authority should consider its requirements for synthetic grass pitches.

Where identified as required, an Authority should list the varying sports activities to be undertaken on the pitches to inform Sub-hubCo Proposals.

7.3.2 Hard Surface Games Area

An Authority should consider its requirements for hard surface games areas (MUGAs).

Where identified as required, an Authority should list the varying sports activities to be undertaken on the areas to inform Sub-hubCo Proposals.

7.3.3 Fire Assembly Area

The Authority should set out Sub-HubCos responsibility to provide fire assembly areas including appropriate signage which shall require to be located to allow sufficient area for building users to safely muster and provide emergency vehicles safe, full and unfettered access.

7.4 Grass Sports Pitch / Athletics Areas

An Authority should consider its requirements for grass sports pitches and athletics areas. Where identified as required, an Authority should complete the requirements highlighted in square brackets to inform Sub-hubCo's Proposals.

SportEngland design guidance may also be consulted - <http://www.sportengland.org/facilities-planning/tools-guidance/design-and-cost-guidance>

7.5 External Facilities

An Authority should consider the following and their design implications in respect to External Facilities for the Facilities:

- Store/ enclosures for Facilities use, bins, Estates/janitorial staff;
- Community stores;
- Energy fuel storage where appropriate i.e. biomass where specific; and
- Dedicated storage for grounds maintenance equipment.

7.6 External Equipment and Furniture

An Authority should set out Sub-hubCo's responsibility to:-

- Allow for securely fixing all equipment and furniture and must not promote access to roofs, fences etc.
- All Site furniture must be visually pleasing and co-ordinated, robust, safe, easily maintained and securely fixed to the ground;
- Planters may be incorporated, and shall require drainage and irrigation provisions;
- Grit and salt stations/bins shall be provided and located outwith public areas;
- Permanent fencing shall be incorporated to assist in security of the Site. Fences shall be secure and robust in construction and of pleasing design. Height shall vary according to functional requirement. Sub-hubCo must assess security risks associated with the Site during the design stages and submit proposals; and
- Adequate, safe, secure, visually supervised parking provision for cycles must be provided at appropriate locations.

7.7 Site Boundary Requirements

An Authority should consider the following in respect of Site Boundary Requirements:

- Specific fencing requirements for the Facilities, including associated hard landscaped areas such as synthetic sports pitches
- Pedestrian and vehicular access gate requirements and any security measures therein.

7.8 Site Access & Circulation

An Authority should set out Sub-hubcos responsibility to ensure:-

- Facility has clearly defined and signed entrance
- Suitable designed road access
- Separation of traffic (schools buses etc.)
- Define routes for construction traffic during construction
- Consider “safer routes to school” guidance

7.8.1 Vehicular Access

The Authority should set out Sub-hubCos responsibility to ensure:-

- All vehicles entering the Site must have suitable turning facilities provided to allow them to exit the site in forward gear.
- Road widths, turning circles, waiting bays and lay-bys shall be designed so that they are suitable for the Facilities and emergency traffic including service vehicles and are designed for the convenience of staff and the public. It shall be noted that some of these routes may be required to connect seamlessly into and be compatible with roads, turning circles, bays and lay-bys which are outside the Site boundary.
- Vehicular access shall further be designed in a manner to minimise unauthorised parking.

7.8.2 Emergency Vehicle Access

The Authority should set out Sub-hubcos responsibility to provide clear and well defined routes for emergency vehicles such as ambulance, fire and police.

7.8.3 Service Vehicle Access

An Authority should provide a list of anticipated service vehicle types and associated frequency to Site to inform subhubCo design proposals

7.8.4 Pedestrian Access

An Authority should consider the pedestrian access requirements for the Facilities. This may include:

- Footpaths with specific links to hard and soft landscaped areas
- Segregation of pedestrian and cycle ways from vehicular routes
- Suitable lighting to all pedestrian access ways
- Appropriate measures are put in place for emergency only access/egress points such that they are not used in every day operation
- The needs for the provision of “rest areas” and provision of handrails along the main pedestrian routes for those who may have difficulty walking.

7.9 Roads, Footpaths, Cycle ways and Car Parking

An Authority should consider the needs of all vehicular traffic on to Site

An Authority should further consider any requirement for fleet vehicle garaging.

7.9.1 Road Markings & Signage

An Authority should set out Sub-hubCos responsibility to ensure:-

- The design provides appropriate signage (including car park management signage), external to the Facilities associated with the Works to ensure ease of navigation around the Site.
- Sub-hubCo undertake all necessary road markings within the Site boundary.

7.9.2 Cycle ways and Cycle Storage

An Authority should consider the requirement for cycle ways and cycle storage specific to the Facilities and Site.

Where identified as required, an Authority should consider the following in addition to the template drafting and in relation to Cycle ways and Cycle Storage for the Facilities:

- Cycle storage facilities to be fully covered to protect cycles from adverse weather conditions, and to detail coverage of lighting and CCTV for security purposes; and
- Showering facility requirements.

7.9.3 Car [and Motor Bike] Parking

An Authority should consider listing the amount of car and motor bike parking (including accessible, parent and child and other non-standard spaces) required for the Facilities, in line with Planning Permissions.

An Authority should consider any specific parking requirements such as locations in respect of Facilities entrance points and minimum space sizes over and above normal planning conditions.

7.9.4 Disabled / Accessible Parking

An Authority should set out Sub-hubCos responsibility to ensure:-

- The design of the Facilities shall recognise the importance of providing suitable accessible parking spaces and drop-off points as close to the entrances as possible.
- Each disabled / accessible parking space shall be provided with signage to meet the standards outlined in the Traffic Signs Regulations and General Directions 2002 for disabled / accessible spaces.
- Accessible parking bays shall incorporate a minimum additional 1.2m section to the end of each bay with level access. This is to allow tailgate access by disabled people without the need to set down ramps or lifts within the main circulation routes of car parks. The first and last accessible parking bays in a row of 'in line' spaces shall be provided with a minimum clear area of 1.2m to both sides.

7.9.5 Drop-off / Pick-up / [Public Transport Access and Stops]

An Authority should consider the needs for the following in respect of Drop Off / Pick Up and Public Transport Access and Stops for the Facilities:

- The need for bus stops within or local to the Facilities and respective design considerations (mitigate bus reversing etc.);
- Separation of bus access to the Site;
- 'Passive' enforcement of protected access routes i.e. rising bollards; and
- Involvement of the Local Council's Public Transport Team or similar relevant body.

8 Mechanical & Electrical Engineering Requirements

This chapter 8 sets out the mechanical and electrical engineering requirements for the project. In completing chapter 8, an Authority may seek additional guidance from its estates team, security team and/or mechanical and electrical engineering technical advisors.

8.1 Minimum Engineering Standards

The Authority should set out Sub-hubCos responsibility to ensure:-

- Unless otherwise agreed with the Authority, Sub-hubCo shall ensure that all building services elements are designed in accordance with current revisions of the standards detailed in chapter 2 of Sub-Section C.
- The design of the environmental control system shall be co-ordinated and integrated with the design of the structure and the occupied areas as to maximise the control and flexibility of the Facilities.

8.2 Energy Centres and Plant Areas

An Authority should consider its requirements for separation of Plant areas and/or Energy Centres away from the Facilities due to educational or operational requirements.

An Authority should further consider identifying area proposals for Mechanical and Electrical engineering plant spaces and workshops in the Schedule of Accommodation and to make reference to such within this sub-chapter.

8.3 Engineering Services Interface with Building Fabric

An Authority should set out Sub-hubCos responsibility to ensure that co-ordination of the electrical, mechanical and communication services which shall form an inherent part of the Facilities design. The building services shall be carefully selected and positioned to achieve physical integration with the architectural design solution, and shall not be considered in isolation. Specific matters which may be addressed by Sub-hubCo are as follows:

- All services plant, including water storage tanks, must be readily accessible to allow for regular inspection, maintenance and longer term replacement;
- Access arrangements to all such plant must be safe, convenient and fully comply with the requirements of the CDM regulations, together with all relevant health and safety legislation and guidance;
- Areas such as boiler rooms, ventilation plant rooms and electrical switchgear rooms must be located in strategic and appropriate positions for convenient and efficient services distribution;
- Exposed services shall be acceptable, but only where designed in a co-ordinated way with the architectural design solution, and where agreed with the Authority;
- Exposed pipework, ducting, conduit and trunking are not appropriate in areas where high standards of cleanliness are required, for example, kitchen areas and toilets; and
- Building services installations generally, while being tamperproof by unauthorised personnel, must also be readily accessible to allow for regular inspection, maintenance and longer term replacement.

8.4 Performance Standards

8.4.1 Energy Performance

An Authority should consider and detail, with its technical advisors and estates team, the energy performance requirements for the Facilities.

Compliance of the energy target shall require to be proved by Sub-hubCo prior to Handover of the Facilities via energy modelling, using approved software, as constructed building fabric and building services specifications and following on site commissioning tests to prove proposed performance values have been met. It should therefore be noted that this is an ‘as constructed’ energy targeted, and does not relate to operational energy targets of the Authority which Sub-hubCo do not have full control of.

An example target would be achieving an ‘Excellent’ level of performance for BREEAM Credit ENE 01 Reducing CO₂ Emissions or a specific Energy Performance Certificate (EPC) rating of 1/B+/B. Both targets set a benchmark improvement over a comparative ‘target’ building design.

Where an Authority sets an energy target using Building Regulations modelling outputs (i.e. BREEAM Credit ENE 01 or an EPC) the following drafting should also be considered to provide the Authority with a more ‘bespoke’ energy model:

A Project specific dynamic energy model shall further be provided by subhubCo for information which shall inform the Authority of the likely energy consumption, and associated Utilities cost forecasting, of the Facilities.

The Project specific dynamic energy model shall use all building properties and plant and services proposals as per subhubCo’s Proposals and the Building Regulations modelling, furthering the input to make it bespoke to the Facilities (i.e. minimising reliance on National Calculation Methodology template operating assumptions). The basis of calculations underpinning the energy figures, and any assumptions, must be reported by Sub-hubCo, including but not limited to example:

- Degree days/CIBSE Weather profiles used;
- Number of weeks in use per annum;
- Hours of use per day;
- Number of users assumed;
- Energy consumption attributed to Equipment; and
- Any other assumptions.

All the above assumptions shall be agreed in writing with the Authority prior to informing the dynamic energy model.

i. Renewable Technologies

An Authority, with its technical advisors and/or estates team, to consider minimum renewable and low to zero carbon technology requirements for the project in line with local area agendas and Authority policies. Where specific requirements are known, these should be detailed within this chapter i.e. 10% of energy consumption on site to be met by Low to Zero Carbon Technologies.

ii. Energy Strategy

An Authority should consider, with its technical advisors, the requirement for an agreed energy strategy based on the likely number of heat and power sources and back up facilities, i.e. if biomass CHP plant is proposed, with back up gas boilers, the CHP plant should be agreed as the ‘lead’ heat and power source for the Facilities.

The Authority should also consider the SFT guidance in regards to drafting in relation to the energy strategy for the building. This can be found at:

<http://www.scottishfuturestrust.org.uk/publications/energy-strategy-guidance-note-for-hub-dbfm-projects>

8.4.2 External Design Conditions

An Authority should consider which external design conditions should be used in the design analysis for the Facilities. Examples include the CIBSE Test Reference Year (TRY) and CIBSE Design Summer Year (DSY) for a number of cities throughout Scotland. An Authority may also consider the need for the Facilities to accommodate potential increases in temperatures i.e. through use of the CIBSE Future Climate Files in thermal modelling exercises.

8.4.3 Internal Design Conditions

An Authority should consider the internal design conditions of each space for both internal comfort and Payment Mechanism / Service Level Specification performance criteria. This information should be reviewed with suitable Estates colleagues and technical advisors.

The environmental data should be captured within the environmental criteria section of Room Data Sheets (RDS) in Section 6 of Schedule Part 6, completed and agreed between the Authority and Sub-hubCo. Where RDS do not include environmental criteria, an Authority may wish to use an Environmental Matrix to set out internal design conditions. A draft example template of an Environmental Matrix is included in the appendices of this guidance document.

An Authority should consider CIBSE guides and Building Bulletin guidance when reviewing internal design conditions.

8.4.4 Thermal Comfort

The environmental data within the RDS/Environmental Matrix requires to be completed and/or agreed by the Authority. As part of this, an Authority should agree and detail, with its technical advisors, the thermal comfort parameters for the Facilities based on Project specific requirements. General educational facilities guidance on thermal comfort levels and overheating is also given in the Department for Education's BB101 'Ventilation and indoor air quality in schools' guidance document and CIBSE guides.

An Authority should agree and detail, with its technical advisors, the thermal comfort parameters for the Facilities based on Project specific requirements.

Where cooling is known to be required in particular areas of the Facilities by an Authority, this, and associated design requirements, should be agreed with its technical advisors and stated in this sub-chapter.

In setting thermal comfort requirements, an Authority should consider wider impacts on HVAC system selection to meet such needs, and energy consumption therein.

An Authority should state the ways in which Sub-hubCo should present thermal modelling overheating analysis for Authority review and agreement, for instance approved software modelling in line with CIBSE Application manual AM11 and the recommendations detailed in CIBSE Technical Memorandum 52: The Limits of Thermal Comfort: Avoiding Overheating in European Buildings.

8.4.5 Air Quality

i. Internal

An Authority should consider, with its technical advisors, CO₂ levels for spaces. Guidance is given in the Department for Education's BB101 'Ventilation and indoor air quality in schools' guidance document and CIBSE guides.

An Authority should consider, with its technical advisors, those areas where natural ventilation is not preferred. Such locations may include where:

- The level of outside noise is unacceptable;
- Safety or security features which affect the natural ventilation design must be provided;
- Unpleasant smells are generated either inside or outside the building;
- Where inflows of air are undesirable;
- Where through environmental calculation/simulation it is shown that natural ventilation alone shall not meet the minimum air flow compliance of limit the internal summer time temperatures to those specified in the RDS; and
- Areas which are comfort cooled.

8.4.6 Vibration

The Authority should set out Sub-hubCos responsibility to ensure that building services plant and equipment are suitably isolated from the building structure in order to prevent the transmission of vibration. Sub-hubCo shall comply with the guidance on the satisfactory magnitude of building vibration with respect to human response given in BS 6472-1:2008 Guide to evaluation of human exposure to vibration in buildings Part 1 Vibration sources other than blasting.

8.4.7 Acoustics

An Authority should consider particular acoustic requirements which will influence subhubCo's design, examples include:

- Appropriate selection of passive ventilation systems which allow for effective operation and control but do not result in noise nuisance;
- Careful selection of plant and equipment;
- Good installation;
- Appropriate design of mechanical services pipework and ductwork with regard to flow rates and velocity;
- Appropriate design of mechanical and electrical noise emitting terminal devices such as lights, grilles, diffusers, radiators, etc. The design of which should not result in noise nuisance;
- Installation of flexible connections and isolation pads where required;
- Use of acoustic louvers where required; and
- Attenuation measures applied where applicable.

Acoustic design guidance and performance criteria can be found in Department of Education publication entitled 'Acoustic Design of Schools: Building Bulletin 93' and CIBSE Guide B "Heating, ventilating, air conditioning and refrigeration".

8.4.8 Daylight

An Authority should consider and detail its requirements in respect of daylight performance. A Good Industry Practice level of performance may be achieved through compliance with credit Hea1 under BREEAM 2014 which requires, under set design conditions, at least 80% by floor area of occupied spaces to have an average daylight factor of 2% or more.

An Authority should further consider its requirement in respect of achieving the 'view out' criteria under the same credit to facilitate adequate views out from all occupied areas.

An Authority should state the ways in which Sub-hubCo should present daylighting design performance, for example using certified software.

8.5 Incoming Services

8.5.1 General

An Authority should consider its requirements in relation to incoming Utilities, the need for new Statutory Authority connections and/or connections to existing Authority services/Utilities.

Connection to existing Utilities connections on Site may reduce costs on the Project, however risks in association with re-use of existing services (including pass through costs and VAT reclamation issues) need to be assessed by an Authority and its advisors.

In detailing the Incoming Services requirements, an Authority should consider the requirements for supplies to include spare capacity for future adaptability or expansion where identified in chapter 3.5. (I.e. 25% spare capacity for future use)

8.5.2 Security of Incoming Supplies

An Authority should set out Sub-hubCos responsibility to ensure:-

- Energy, water, power supplies, and communication supplies to and within the Facilities are maintained by agreement with the Utilities suppliers and the Authority.
- Sub-hubCo shall develop a strategy to ensure the security of the supply. Sub-hubCo shall be required to demonstrate the feasibility of the strategy to the satisfaction of the Authority.
- Sub-hubCo shall investigate adequacy, and provide the Authority a report on location and number of connections of main's water supply, gas and electrical supplies around and to the Site. Sub-hubCo shall ensure their mains water, gas, electrical and data/telecommunication connections to the Site maintains an adequate, autonomous and robust service and shall submit full connection details with their proposals.

8.5.3 Provision for Isolation

An Authority should set out Sub-hubCos responsibility to ensure:-

- Sub-hubCo shall provide external isolation of water supplies to the new Facilities. Local isolation of the water supply to all sanitary appliances, and at the final equipment connection points, shall also be provided.
- [Sub-hubCo shall ensure that all sections of the supply mains, whether supplying electricity, gas or fluids, can be taken out of service for connection and maintenance without interrupting the supply to the Retained Estate buildings.]

8.6 Mechanical Systems

8.6.1 Building Management Systems & Controls

An Authority, with its technical advisors, should consider BMS requirements respective of the Project.

Smaller Facilities may not require the level of detail provided within the template drafting and should be scaled as appropriate.

An Authority should consider all elements/systems/Plant it requirements monitored, controlled and recorded on the BMS. The following sub-headings provide additional prompts for detailing BMS requirements:

(i) Zone Control

An Authority should set out Sub-hubCos responsibility to ensure:-

- Individual temperature control for all zoned areas
- 24 hour areas should be independently controlled from non 24 hour zones.
- Sufficient monitoring and temperature sensing should be provided to provide an accurate and cost effective zonal control.
- Zoning shall take cognisance of building orientation and elevational design.

(ii) Optimisation & Compensation

An Authority should set out Sub-hubCos responsibility to ensure Good Industry Practice is adhered to regarding control regimes incorporating time, optimisation and weather compensation.

(iii) Smart Metering

An Authority should set out Sub-hubCo's responsibility to provide smart meters to monitor and record energy consumption on Site.

An Authority should confirm the level of metering and sub-metering required within the Facilities, by building service and fuel type.

(iv) Smart Meter Type

An Authority should set out Sub-hubCos responsibility to ensure the new smart meters must be capable to 'store measured energy consumption data for multiple time periods; and at least half hourly' and they must 'provide remote access to such data by the licensee'. The meter shall allow access to data to be available in a day + one.

(v) Communication Protocol

An Authority should consider its requirements for open protocol systems to and compatibility with existing facilities systems, and detail how the systems should interface/connect.

(vi) User Interface

An Authority should set out Sub-hubCos responsibility to ensure:-

- Smart meters have interface with the BMS
- Sub-hubCo shall provide the Authority with a system capable of remote off-site access through the BMS. The links shall ensure the Authority can monitor internal and utility consumptions / trends and read access Plant operation and alarms. Software access to be security password controlled.

- Sub-hubCo to prepare and present sample software tutorial on BMS graphics (Graphical User Interface) to the Authority/end user for comment/approval at a time suitably in advance of completion to allow software/graphic modifications in line with the Authority comments.
- Sub-hubCo shall provide all necessary licenses for Authority access to the system.

(vii) System Selection

An Authority should set out Sub-hubCos responsibility to ensure:-

- that all materials and equipment used are standard components, regularly manufactured for this and/or other systems and not custom designed especially for this project.

Sub-hubco shall confirm that both the hardware and software shall be fully supported for a minimum period of 15 years from the Completion Date. Future compatibility shall be supported for no less than 10 years from the Completion Date.

8.6.2 Main Water Connection to the Site

An Authority should consider the need for a new local Scottish Water network connection or connection to an existing Site connection. , and set out Sub-hubCo’s responsibility in designing, procuring and making the connection therein

Where connection to a Retained Estate connection is proposed and agreed, an Authority should consider the following drafting:

In connection to Retained Estate Mains Water services, Sub-hubCo shall engage the Authority in the proposals, including connection points, and provide all supporting evidence to confirm that the existing supply is suitable in terms of available capacity and quality of supply. All works in connection with the Authority’s existing main water infrastructure shall be agreed in advance with the Authority including all design, construction and maintenance proposals, working method statements, and programmes of work. The Retained Estate, or any buildings within the Site which are live during construction, shall not be disrupted in anyway in connecting, setting to work and commissioning an existing main water connection to the Facilities. Sub-hubCo shall provide an interface programme to detail such works.

An Authority should consider the need for a single or, where resilience requires, a double connection to the Site.

8.6.3 Site Mains Water, Fire Water, Quality & Distribution

An Authority should set out Sub-hubCos responsibility to ensure:-

- Sub-hubCo shall filter the Site potable water to the criteria set out in CIBSE Guides and commensurate with the piping material proposed.
- In determining the pipework material the Sub-hubCo shall take cognisance of the latest best practice Scotland.
- Water services for firefighting purposes shall be provided in line with Sub-hubCo’s Proposals and Fire Strategy.
- Sub-hubCo shall review the requirements for fire hydrants, sprinklers etc. with the relevant Local Building Control Department and the relevant Fire and Rescue Service.
- Where firefighting water is required, Sub-hubCo shall be responsible for confirming the water services are sufficient in regards to the pressure and flow rates. Any firefighting water tanks shall be buried.
- All Fire Fighting water proposals shall be agreed with the Authority.

8.6.4 Choice of Fuels

An Authority should set out Sub-hubCos shall be responsible determining the philosophy for the provision of fossil fuels to the Site. Sub-hubCo shall be responsible for, and shall include for, all works in connection with the supply of fossil fuel services to the Site, including liaison with statutory authorities, procurement of the supplies, connection of the mains supplies to the Facilities and all associated ground works and making good, including those out with the Site boundary

8.6.5 Gas Installations

An Authority should set out Sub-hubCo's responsibility for any gas connections and installations.

An Authority should set out its requirements for gas to specific areas/classrooms, and specific requirements therein i.e. emergency power shut offs and gas proving systems.

An Authority should consider the need, or not, for gas to serve catering facilities for the Project.

8.6.6 Heating System

An Authority should consider its requirements set out Sub-hubCo's responsibility for heating systems in the Facilities.

Areas of consideration may include:

- Need for provision of high efficiency heat generation plant
- Heating controls being user friendly and located relevant to approved Users
- Temperature adjustment requirements, and whether they should be locally and/or centrally provided
- Need for pipework arrangements to suit heating zones agreed with the Authority (in order to time control and set back department/units as required)
- Need for standby heating services i.e. N+1 heat generation provision
- Detailing which rooms, if any, require local user control;
- Whether low surface temperature type emitters, with a maximum surface temperature in the occupied zone of 43°C, are required;
- The need for resilience in heating plant for resilience purposes;
- The need for the heating system to be controlled through the BMS; and
- The need for warm air curtains over main building entrances and in draft lobbies, with speed and output control, to provide a barrier to the ingress of cold air and drafts, and aid the evaporation of water at entrance locations.

8.6.7 Domestic Water Services

An Authority should consider where in the facilities mains water supplies are required.

Where specific, an Authority should consider its specific requirements for water dispensers – location, installation requirements (i.e. drainage) etc.

An Authority should confirm the hours of water storage required for the Facilities. Guidance may be sought from CIBSE Guides and from technical advisors to ensure storage provides the relevant requirement for resilience on mains water loss, but also considers legionella control.

An Authority should also consider:

- Any specific Authority domestic water use protocol/design requirements;
- Leak detection requirements within the Facilities; and
- The need for proximity detection shut offs for water supply to toilet areas.

8.6.8 Hot Water Supply

An Authority should consider and set out Sub-hubCo's responsibility for the provision of hot water, including the temperature of supplies in areas throughout the Facilities i.e. maximum temperatures of hot water for the Public and Users and that for operational use (DSRs, Kitchens etc.).

An Authority should consider its requirements for either water boilers or 'zip' taps to provide boiling water for pantry and kitchen areas.

8.6.9 Mechanical Vent, Air Conditioning and Comfort Cooling

An Authority should review mechanical ventilation, air conditioning and cooling requirements in respect of Sub-hubCo's thermal and air quality comfort analysis during Stage 1 development.

Where identified as required, an Authority should review specific requirements with its technical advisors.

Issues for consideration include:

- Need for systems to avoid draughts
- Design to minimise noise intrusion in to the space
- Selection of cooling refrigerants to take in to consideration environmental impact

8.6.10 Combined Heat and Power

An Authority, in collaboration with its advisors and Sub-hubCo to consider the environmental benefits and economic viability of a suitably sized combined heat and power system (CHP).

Consideration shall be given to the maintenance implications of such a system, and fuel supply being a pass through cost in assessments. If beneficial to the Authority and Sub-hubCo, Sub-hubCo shall incorporate CHP into the building services philosophy for the Facilities.

Should CHP be adopted in to Sub-hubCo's Proposals, the system shall be sized to best match the needs of the Facilities i.e. matched to the base demand of the Facilities or provided in modular units to step up to meet demand as required. Waste heat shall be fully utilised in the heating of the Facilities and its services, and not discharged by other means.

If adopted, CHP should be considered the lead heat and energy providing system. Sub-hubCo shall prepare a primary energy strategy detailing the interface of CHP with supporting heat and power services, which shall be agreed with the Authority, and followed in operation unless agreed in writing with the Authority otherwise.

8.6.11 Laboratory Gases

An Authority should consider its requirement for laboratory gas systems such as natural gas outlets, nitrogen or carbon dioxide.

Where identified, an Authority should confirm locations and detail requirements for such systems.

8.6.12 Local Exhaust Ventilation Systems

An Authority should consider its requirements for LEV systems, including any known kitchen canopy requirements.

8.6.13 Fume Cupboard & Micro-biological Safety Cabinets

An Authority should consider its requirements for fume cupboard and/or safety cabinets.

Where identified, an Authority should confirm locations and detail requirements for such systems.

8.6.14 Drainage

An Authority should confirm locations for drainage within the Facilities, particularly those of a specialist nature i.e. in laboratories.

8.6.15 Fuel Storage Tanks

An Authority should consider its requirements for fuel storage tanks i.e. for standby generator, heating plant or CHP systems.

Where identified, an Authority should confirm the specific requirements, including volume sizing i.e. storage volume to allow for so many hours full load operation.

An Authority should further consider its requirements for fuel storage tanks location i.e. so as not to cause an eye-sore, or not to be buried for environmental reasons.

8.7 Electrical Systems

8.7.1 Main & Sub-Main Distribution

An Authority should consider its requirement and Sub-hubCo's responsibilities for a new mains Utilities power network connection or connection to an existing Site connection.

Where connection to a Retained Estate connection is proposed and agreed, an Authority should consider the following drafting:

Where Sub-hubCo propose connection to the existing Retained Estate mains electricity connection, Sub-hubCo shall engage the Authority in the proposals, including connection points, and provide all supporting evidence to confirm that the existing supply is suitable in terms of available capacity and quality of supply. All works in connection with the Authority's existing main electricity infrastructure shall be agreed in advance with the Authority including all design, construction and maintenance proposals, working method statements, and programmes of work. The Retained Estate, or any buildings within the Site which are live during construction, shall not be disrupted in anyway in connecting, setting to work and commissioning an existing main electricity connection to the Facilities. Sub-hubCo shall provide an interface programme to detail such works.

An Authority should confirm the level of spare capacity required in new mains power connections for future resilience purposes.

An Authority should consider the resilience requirements of the Facilities, regarding the provision of a single or double mains power connection to the Site.

8.7.2 Electrical Small Power

An Authority should consider its requirements and set out Sub-hubCo's responsibilities for small power provision. An Authority may consider the following in respect of small power:

- Provision of small power outlets for all Plant, Equipment and User/operational requirements throughout the Facilities
- Specific wiring requirements/ materials
- RCBOs to be provided to all circuits
- Location of power switches and any engraved switching requirements
- For safety reasons, cooking appliances, including toasters, to be interlinked with a PIR system to turn the power off to the unit when occupancy is not detected within the vicinity.

8.7.3 Lighting

Lighting is important to the operation of the Facilities and an Authority, with its technical advisors, should consider the specific requirements of the Facilities when completing this sub-chapter.

Relevant guidance notes include CIBSE Lighting Guides, in particular Lighting Guide 5 "Lighting for Education".

The following sub-headings provide prompts for lighting consideration points:

8.7.4 Interior Lighting

An Authority should consider the following, with its technical advisors (and where relevant Sub-hubCo):

- Minimum lux levels are achieved as set out in the RDS or Environmental Matrix;
- The lighting design to take in to consideration maximisation of 'daylighting' through daylight linking;
- Luminaires shall be selected to minimise energy consumption. For example reviewing the benefits and economic viability of LED light fittings throughout the Facilities, taking in to consideration whole life cycle costs and energy performance;
- Lighting being sufficient for security, such as night lighting and linking with CCTV operations;
- Lighting design meets the needs of spaces with multiple uses;
- The need for corridors to be multi circuited to facilitate use of 100% or 50% of the luminaire, and/or to be dimmable;
- Where a corridor is over 15 metres in length, zoned lighting to be provided; and
- Where food is prepared or areas are classed as 'hazardous' or specialist, Sub-hubCo shall provide luminaires which are suitable for the activities in the room and cleaning regimes proposed.

8.7.5 Exterior Lighting

An Authority should consider its requirements for exterior lighting within the wider Site, garden areas and/or courtyards.

External lighting considerations include:

- Minimum lux levels are achieved as set out in Good Industry Practice and security guidance
- Linking is provided with CCTV operation
- Light pollution is minimised and is in line with Planning Guidance
- External luminaires do not impact on the operation of internal requirements
- Luminaires are robust and weather and vandal proof
- Luminaires shall be selected to minimise energy consumption. For example reviewing the benefits and economic viability of LED light fittings throughout the Facilities, taking in to consideration whole life cycle costs and energy performance

8.7.6 Lighting Control & Wiring

An Authority should consider, with its technical advisors, its requirements for lighting controls and wiring. Particular issues may include:

- Maximising energy performance through considerate automated lighting control i.e. presence detection and daylight linking
- Ability for scheduling lighting for zones/departments
- Requirements for dimming
- Locations of lighting control i.e. User accessible or located for approved persons
- Detailing specific control/switching requirements for all areas within the Facilities – this may refer to information in the RDS or Environmental Matrix. For instance, daylight linking and multi-switching arrangements (including locations of switches) in classrooms.

8.7.7 Emergency Lighting

An Authority should set out Sub-hubCos responsibility to ensure they comply with the requirements of BS 5266 Emergency Lighting and European Legislation CEN/TC 169 WG3 Emergency Lighting of Buildings, achieving requirements through use of central supplied or self-contained emergency luminaries. Sub-hubCo shall demonstrate the whole life cost appraisal of central supplied or self-contained emergency luminaries.

8.7.8 Lifts

An Authority, with its technical advisors and where deemed necessary, Sub-hubCo to confirm the requirements for lifts in the Facilities.

Where lifts are identified as required, an Authority should consider location, type, finish, controls, communication, environmental conditions, lighting and access control/security requirements.

8.7.9 Clock Installations

An Authority should consider its requirements for mains powered, synchronised clocks.

Where identified as not required, the sub-chapter may be removed.

8.7.10 Disabled Refuge Call System

An Authority should consider where a disabled refuge call system shall report to i.e. Reception/Security Office and the requirement for voice communication between refuge areas, the central location and any portable handsets.

8.7.11 Induction Loop

An Authority should consider its requirements for Induction Loop systems, including type i.e. fixed and/or portable.

An Authority should confirm the type and location of induction loop coverage.

8.7.12 Intercoms

An Authority should consider its requirements for intercom systems throughout the Facilities.

An Authority should confirm type and location of intercom systems i.e. audio or video type intercoms for main access to the reception and separate relay for out of hours access to a manned office/security pager system.

8.7.13 Public Address System

An Authority should consider its requirements for a Public Address System for the Facilities.

Where identified as required, an Authority should consider coverage requirements of the system in the Facilities, completing text within the square brackets.

8.7.14 Sound, Lighting and Entertainment Systems

An Authority should consider its requirements for Sound, Lighting and Entertainment Systems for the Facilities.

Where identified as required, an Authority should consider specific requirements and detail these in this sub-chapter or Sub-Section D of the ACRs.

An Authority should also confirm coverage area requirements of the system in the Facilities, detailing the locations as prompted in the template drafting.

8.7.15 Period Annunciation Systems

An Authority should consider its requirements for a Public Annunciation System for the Facilities.

Where identified as required, an Authority should consider its requirements and review, accept and amend the template drafting as appropriate.

8.7.16 Cashless Till Systems

An Authority, with its technical advisors, should consider its requirements for a cashless till system and associated requirements.

Where identified as required, an Authority should detail specific requirements of the system, such as the need for biometric identification, tie in to school passes/access control systems etc.

8.7.17 Electric Vehicle Charging

An Authority should consider any requirement for electric vehicle charging points and associated electrical supply infrastructure, metering of supplies, and security/access of supply points.

8.8 Security

8.8.1 General

An Authority should consider, with its technical advisors, the responsibilities of the design, provision/construction, maintenance and management of Security services. The following sub-headings provide prompts for security service requirements to be identified.

Where a systems responsibilities are shared between Sub-hubCo and the Authority, an Authority shall detail these requirements within the Specialist Services Responsibilities Matrix in chapter 10 OF Sub-Section C. Cross reference to the Specialist Services Responsibilities Matrix to be made here where relevant.

8.8.2 Alarms & Intruder Detection System

An Authority should consider its requirements for alarms and intruder detection systems.

Areas for consideration may include:

- Types and location of detectors (i.e. dual technology detectors located adjacent to ground floor windows, doors and Rooflights)
- How intruder detection should annunciate and be raised

- How/where the intruder detection system should be set/overridden/controlled
- The need for any 3rd party alarm connections i.e. panic alarms direct to the local Police
- The need for any separate safe/Equipment alarms

8.8.3 Security Access Control

An Authority should consider its requirements for Security Access Control.

An Authority should consider the type of security access control system and any interface with other systems, i.e. proximity cards which allow for access to other Authority facilities, or interface with cashless till systems etc.

An Authority should be as specific as possible in terms of Access Control coverage. This may be undertaken as a Stage 1 review with Sub-hubCo on early general arrangement iterations. An Authority should consider electronic access control in line with locks and locking suiting arrangement proposals for the Facilities.

An Authority should confirm whether access control system require printing facilities for photographic ID purposes.

An Authority should confirm the number of cards/pendants required to ensure adequate cost provision in Sub-hubCo's proposals. Suitable spares provision should further be allowed for.

An Authority should consider the location and ownership of the management PC i.e. to be provided by Sub-hubCo and managed by the Authority.

8.8.4 CCTV

An Authority should consider its requirements and Sub-hubCo's responsibilities for CCTV.

An Authority may consider:

- Listing areas for CCTV coverage, for example the perimeter of the site, all entry/ exit points to/ from the Facilities, internal circulation spaces, critical / secure areas within the Facilities etc.
- Types of cameras to be provided
- Any Authority protocols/design guidance for CCTV
- Type, quality and longevity of recordings
- How and where monitoring will take place and any monitor specification requirements
- Ability to secure recordings
- Ability to write recordings to DVD/USB
- Any interface requirements with any Retained Estate CCTV coverage i.e. shared facilities.

8.8.5 Car Park Barriers

An Authority should consider its requirements for car park barriers. Where identified as not required, this sub-chapter may be removed.

8.9 TV & Radio Facilities

An Authority should consider the requirement for TV and Radio services to be operated through the ICT (data) system, rather than traditional co-axial.

An Authority should consider the TV and Radio facilities required for interactive whiteboards, digital flat screens and other such electronic devices located throughout the Facilities.

An Authority should consider the TV and Radio services required for the purposes of displaying live and recorded digital TV/ Radio and other digital media (live or recorded), together with displaying digital signage.

8.10 Lightning Protection & Earthing

The Authority should set out Sub-hubCos responsibility to ensure:-

- Sub-hubCo shall provide a lightning protection system for the protection of the structure, the contents and occupants. The lightning protection installation shall be in accordance with the latest version of BS EN62305
- Sub-hubCo shall provide a system of earthing that shall ensure sufficient and fast operation of protective systems in the case of earth faults.
- The earthing system shall comply with BS7671:2008 Requirements for electrical installations (IEE Wiring Regulations), BS7430:1998 Code of Practice for earthing and with the Electricity at Work Regulations 1989

8.11 Fire Detection & Suppression Systems

An Authority, with its technical advisors, should consider its requirements and Sub-hubCo's responsibilities for the provision of fire detection and suppression systems.

An Authority should set out its requirements in respect of the required compliance of the system and any Authority specific protocols/guidance documents and future compatibility expansion.

(i) [Sprinklers]

An Authority should consider, with its technical advisors, the need for sprinklers based on Facilities and insurance requirements. Where identified as required, the below drafting is for consideration:

Sub-hubCo shall provide the Facilities with a comprehensive sprinkler system which must be interfaced with the fire alarm for the purposes of raising an alarm and monitoring.

Sprinkler protection shall be designed and installed in full conformity with all current Loss Prevention Certification Board (LCPB) guidance relating to automatic sprinkler installations, together with the current version of BS 9999 and all other relevant guidance and applicable standards. Systems shall be designed having regard to a properly undertaken fire risk assessment which shall be used to inform all decisions regarding the hazard classification for the risk. The facilities shall be designed to Ordinary Hazard Group [X].

All components used shall be LPCB listed. The system is to be serviced and maintained in accordance with the Loss Prevention Standard 1050. The system shall be required to have an independently accredited certification of conformity from LCPB.

A single wet control valve set shall control the whole of the sprinkler installation. The distribution mains shall be routed through the circulation areas, with branch range pipework being taken to serve each of the heads within the various rooms/ areas of the building.

Sprinkler heads above ceilings and in locations of non-visibility shall be of the brass type. Where suspended ceilings are involved, the sprinkler head shall be of the recessed flush fitting type having a cover plate incorporating a fusible link.

All sprinkler head locations shall be co-ordinated with other engineering services in an aesthetically pleasing manner.

An LPCB approved sprinkler tank with electronic and diesel pump set² shall be provided with an appropriate capacity/ duty. All sprinkler tanks shall be buried.

8.12 Engineering Flexibility & Zoning

The Authority should set out Sub-hubCos responsibility to ensure the location of engineering and utility services shall be co-ordinated with the structure and as far as is reasonably practicable shall not constrain or conflict with Operational Functionality. Heating, ventilation, electrical and medical gas zoning shall be configured to promote flexibility in order to enable re-modelling and re-planning to be undertaken at a future date.

All engineering services shall be zoned with isolation and safety provision, for the whole of the Facilities and for individual units and departments. Sub-hubCo should also ensure that zoning accounts for:

- Solar movement;
- Standard operating hours of the various departments (i.e. 24 hour vs. 12 hour and 7 day vs. 5 day a week); and
- The necessity for isolation of part of the Facilities without affecting the entire Facilities.

8.13 Services Capacity Reserve

An Authority, with its technical advisors, to consider specific requirements for Services capacity reserve in relation to the Facilities flexibility and future proofing requirements, and any adaptability and expansion requirements detailed in chapter 3.5.

For instance 25% spare on mains Utilities connections and 10% spare capacity on main plant and distribution runs within the Facilities.

An Authority should further consider, where future expansion is identified, requirements to leave 'spare' space adjacent to Plant areas to facilitate future Plant installation expansion, without the need for capital investment in Plant at Practical Completion.

8.14 Service Routes

The Authority should set out Sub-hubcos responsibility to ensure:-

- All service voids, risers and other spaces shall allow for installation of additional services and shall provide a defined reserve of a minimum 25% of useable area through routing cross sectional area. All isolating valves and other items requiring particular access shall be positioned at convenient locations with permanent access provision and which do not impede execution of the operational functions of the space.

8.15 Commissioning & Testing

An Authority should consider its requirements and Sub-hubCo's responsibilities for any specific commissioning and testing requirement it may have over Good Industry Practice. This may include any specified authorised person it may wish to be present during the commissioning and testing stages of certain services and systems.

² If standby generators are proposed for the Facilities, 2 electric pump sets may be provided

Reference may be made to Appendix B (Completion Criteria) of Schedule Part 10 (Outline Commissioning Programme) and Section 7 (Thermal and Energy Efficiency Testing) of Schedule Part 6 (Construction Matters).

9 Information and Communications Technology (ICT) Requirements

This chapter 9 sets out the ICT requirements for the project. In completing chapter 9, an Authority may seek additional guidance from its estates team, Information & Communications/Network teams, security team and/or technical advisors.

9.1 Introduction

An Authority should consider the importance of information and communication in the provision of services in the modern educational environment; having the right information available and efficient means of communication enables improved efficiency. There is an increasing reliance on ICT infrastructure to meet these requirements both in terms of performance and availability.

An Authority should set out that the following sub-headings provide the principles to the delivery of ICT systems and should define the responsibilities of Sub-hubCo.

9.2 Overall Requirements

An Authority should consider their ICT requirements in relation to any strategic guidance specific to the Facilities or Authority, for example any Authority Design Manuals.

9.3 Design Requirements

9.3.1 User / Functional Requirements

An Authority should set out Sub-hubCos responsibility to ensure:-

- Liaise with the Authority to robustly identify and capture all User and Functional Requirements required within each ICT system to support key departmental operational requirements.
- That these captured user and functional requirements are achieved within the design and construction of the ICT systems, including the selection of appropriate and compatible manufacturer products and systems.

9.3.2 System Availability

An Authority should consider, with its technical advisors, the Availability requirements of the Facilities, providing targets as necessary within an Appendix to the ACRs.

9.4 Minimum Engineering Standards

The Authority should set out Sub-hubCos responsibility to ensure they comply with:-

- All current relevant British Standards;
- European Harmonised Standard Specifications and Codes of Practice;
- NHS Scotland guidance notes and recommendations in section;
- Electromagnetic Compatibility Regulations 2006;
- BS EN 50173-1: 2011 (Information Technology – Generic Cabling Systems)
- BS EN 50174-1: 2009+A1:2011 (Information Technology – Cabling Installation Part 1 Specification and Quality Assurance)
- BS EN 50174-2: 2009+A1:2011 (Information Technology – Cabling Installation Part 2 Installation Planning and Practices inside Buildings)
- BS EN 50174-3:2003 (Installation technology. Cabling installation. Installation planning and practices outside buildings)

- BS 6701:2010 Telecommunications equipment and telecommunications cabling. – Specification for installation operation and maintenance.
- BS 7718: 1996 Code of Practice for Installation of Fibre Optic Cabling.
- BS 7430: 2011 Code of Practice for protective earthing of electrical installations.
- BS EN 50310: 2010 Application of Equipment Bonding and Earthing in Buildings with Information Technology Equipment
- TIA/EIA-606-A-1: 2008 (Administration Standard for commercial Telecommunications Infrastructure)
- TIA/EIA-607: 1994 (Commercial Building Grounding and Bonding Requirements for Telecommunications)
- TIA TIA-568-C SET (Commercial Building Telecommunications Cabling Standards - Set Includes: TIA-568-C.0, TIA-568-C.0-1, TIA-568-C.0-2, TIA-568-C.1, TIA-568-C.1-1, TIA-568-C.1-2, TIA-568-C.2, TIA-568-C.2 Errata, TIA-568-C.3, TIA-568-C.3-1, and TIA-568-C.4).
- ISO/IEC 11801-04-CAN/CSA AMD 2 (Information Technology – Generic Cabling for Customer Premises)
- BS ISO/IEC 27001:2005/BS 7799-2:2005 (Information technology - Security techniques - Information security management systems - Requirements)
- BS ISO 22301:2012 (Societal security. Business continuity management systems. Requirements)
- BS ISO/IEC 27013: 2012 (Information technology - Security techniques – Guidance in the integrated implementation of ISO/IEC 27001 and ISO/IEC 20000-1)
- Relevant technical specifications (or equivalent) in the following order of precedence:
 - British Standards transposing European Standards;
 - European technical approvals;
 - common technical specifications;
 - International Standards; or
 - other technical reference systems established by the European standardisation bodies.
- If the technical specifications referred to above) are insufficient to meet the ICT requirements, Sub-hubCo shall make reference to the following technical specifications (or equivalent):
 - British Standards;
 - British technical approvals;
 - British technical specifications relating to the design, calculation and execution of the Works and use of the products; or
 - DfT Publications, standards and technical memoranda.
- Relevant OFTEL and DTI Standards, Publications and Regulations.
- Relevant Legislation.

9.5 Server and Node Rooms

An Authority should consider, with its technical advisors, its requirements and Sub-hubCo's responsibilities associated with Server and Node Rooms.

- Items for consideration include:
- Security of rooms
- Minimum number of rooms
- Location of rooms i.e. not in basements
- Minimum size of rooms
- Proposed cabinet sizes and minimum clear access/maintenance space and any spare capacity requirements
- Environmental conditions location of Server Rooms.
- Requirement for UPS
- Description of requirement for Server Rooms and where Server Rooms are sited away from the Facilities, outwith Sub-hubCo's Site, this should be detailed
- Back up copper cabling

9.6 Structured Cabling System

An Authority should consider its requirements of the structured cabling system with its ICT/Network team specialists. Those services in square brackets within the sub-chapter shall be reviewed respective of the Facilities requirements.

9.6.1 Cabling

An Authority should consider its specification requirements for the structured cabling type with its ICT/Network team specialists.

9.6.2 Fibre Optic Cabling

An Authority should consider its specification requirements for fibre optic cabling type with its ICT/Network team specialists.

9.6.3 Data Patch Panels

An Authority should set out Sub-hubCos take cognisance of the ICT requirements and provide suitable patch panels for their infrastructure cabling.

9.6.4 Data Outlets

An Authority should set out Sub-hubCos responsibility to ensure:-

- The data and voice outlets shall be RJ45 and shall utilise lead-frame technology for improved performance and reduced depth. The outlet contacts shall be silver-plated and positioned at 45° to the copper core of the cable to increase the number of possible re-terminations and provide a gas tight seal.
- The outlets shall be appropriate for the Authority's Construction Requirements and the rooms / spaces identified.

9.6.5 Ancillaries

An Authority should set out Sub-hubCos responsibility to ensure:-

- Cable trays, conduit drops and 3 chamber containment shall be capable of allowing space for a 25% spare capacity.
- Cable trays must cross all other cable trays at 90° angle.

9.6.6 Telephony tie cables

An Authority should set out Sub-hubCos responsibility to ensure:-

- Telephony tie cables shall be terminated on Sub-hubCo supplied RJ45 patch panels at each end.
- Telephony tie cables shall be four wire terminated to pins 1, 2, 4 and 5 at each end.
- Telephony tie cables patch panels shall be clearly identified and separate and easily distinguishable from other patch panels.

9.6.7 Outlet identification definition

An Authority should set out Sub-hubCos responsibility to ensure:-

- The outlets shall be appropriate to meet the requirements of the Authority's Sub-Section D of Schedule Part 6 (Construction Matters); and the rooms / spaces identified.
- The outlets shall be presented flush with the face plate.
- Outlets shall be identified with Node number, panel number and port number. Thus a port labelled as N1P4-34 shall be connected to port 34 on patch panel 4 in node room 1.

9.7 Wireless Network

An Authority should consider its requirements for wireless network coverage throughout the Facilities. 100% coverage is considered Good Industry Practice, however should be assessed by an Authority and its advisors specific to the relevance for the Facilities.

An Authority should work with Sub-hubCo during Stage 1 to initiate computerised wireless access surveys to confirm the number of wireless access points required for the Facilities, based on the geometry and construction proposals from Sub-hubCo's design.

9.8 External Services

An Authority should consider and detail, with its technical advisors and ICT/Network specialists, external cable requirements, including mains communications connections and/or connections to remote Server Rooms and/or other facilities.

An Authority should consider location, access and resilience of these services detailing fibre and copper cabling requirements. Dual, diversely routed connections are advised for resilience purposes.

9.9 Communication & Connectivity with Retained Estate Infrastructure

An Authority should consider, with its technical advisors, any communication and/or connectivity with any existing facilities or any Retained Estate.

9.10 Programming of Works

An Authority should consider its requirements for programming of ICT works and any early access right requirements to facilitate Authority ICT installations and commissioning prior to Operational Commencement.

An Authority should set out Sub-hubCo's responsibility to programme the works to ensure no disruption to existing Authority ICT services.

10 Specialist Services Responsibilities Matrix

This chapter 10 sets out the Specialist Services Responsibilities Matrix for the project. In completing chapter 10, an Authority may seek additional guidance from its estates team, Information & Communications/Network teams, security team and/or technical advisors.

An Authority should consider the completion of the Specialist Services Responsibilities Matrix based on the respective requirements of its Facilities, populating the body responsible for each aspect of the Service/Technology. Indicative responsibilities are pre-populated, however should all be reviewed, adopted and amended as appropriate to the Project.

Where Services are solely designed, constructed, managed and maintained by subhubCo, this may be stated within the Service descriptive elsewhere in this Sub-Section C and removed from this Responsibilities Matrix. Those Service/Technologies listed in the table are non-exhaustive. Any Site specific interface issues may be addressed here (Utilities interface issues etc.)

Service / Technology	System Design	Construction / Provision	Management	Maintain/ Lifecycle Replace
1. Information Communications Technology (ICT)				
System management	N/A	N/A	Authority (equipment) / Sub-hubco (infrastructure)	Authority (equipment) / Sub-hubco (infrastructure)
System architecture, design	Sub-hubco to Authority approval	Sub-hubco	Authority	Sub-hubco
Hardware (inc. PCs, printers)	Authority	Authority	Authority	Authority
Hubs, servers/switches	Authority	Authority	Authority	Authority
Authority Server and Node Rooms	Sub-hubco to Authority approval	Sub-hubco	Authority	Sub-hubco
Containment	Sub-hubco to Authority approval	Sub-hubco	Sub-hubco	Sub-hubco
Cabling and faceplates	Sub-hubco to Authority approval	Sub-hubco	Sub-hubco	Sub-hubco
Testing & Commissioning of Sub-hubco Equipment	N/A	Sub-hubco (with Authority in attendance)	Sub-hubco	Sub-hubco
Testing & Commissioning of Authority Equipment	N/A	Authority	Authority	Authority
ICT dedicated UPS	Sub-hubco to Authority approval	Authority	Authority	Authority
Final connections to hardware, hubs, UPS, external links and other equipment	N/A	Authority	Authority	Authority

Service / Technology	System Design	Construction / Provision	Management	Maintain/ Lifecycle Replace
Facilities for seminar rooms, presentation spaces, reception areas, offices	<i>Sub-hubco (infrastructure only) to Authority approval, refer Schedule Part 11, Equipment Schedule</i>	<i>Sub-hubco (infrastructure only) / Authority (equipment)</i>	<i>Authority (equipment) / Sub-hubco (infrastructure)</i>	<i>Authority (equipment) / Sub-hubco (infrastructure)</i>
Links to Other Organisations	<i>Sub-hubco (infrastructure only) to Authority approval</i>	<i>Sub-hubco (infrastructure only) / Authority (equipment)</i>	<i>Authority (equipment) / Sub-hubco (infrastructure)</i>	<i>Authority (equipment) / Sub-hubco (infrastructure)</i>
Video Conferencing links/ facilities – external, internal	<i>Sub-hubco (infrastructure only) to Authority approval, refer Schedule Part 11, Equipment Schedule</i>	<i>Sub-hubco (infrastructure only) / Authority (equipment)</i>	<i>Authority (equipment) / Sub-hubco (infrastructure)</i>	<i>Authority (equipment) / Sub-hubco (infrastructure)</i>
2. Telephone System				
System management	<i>N/A</i>	<i>N/A</i>	<i>Authority</i>	<i>Authority</i>
System architecture/design	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
PBX System	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
Operator Console	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
Hand sets	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
Pagers / staff location system	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
Containment	<i>Sub-hubco to Authority approval</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>
Cabling and faceplates	<i>Sub-hubco to Authority approval</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>
Testing & Commissioning of Sub-hubco Equipment	<i>N/A</i>	<i>Sub-hubco (with Authority in attendance)</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>
Testing & Commissioning of Authority Equipment	<i>N/A</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
Final connections to PBX system	<i>N/A</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
Telephone System dedicated UPS	<i>Sub-hubco (infrastructure only) - Authority to provide as a part of Hardware</i>	<i>Sub-hubco (infrastructure only)</i>	<i>Authority</i>	<i>Authority</i>
3. Fixed Induction Loops				
System management	<i>Sub-hubco</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>
System architecture/design	<i>Sub-hubco to Authority approval</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>
System provision	<i>N/A</i>	<i>Sub-hubco to install complete system with</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>

Service / Technology	System Design	Construction / Provision	Management	Maintain/ Lifecycle Replace
		<i>potential for expansion</i>		
Testing & Commissioning	N/A	<i>Sub-hubco (with Authority in attendance)</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>
4. Security Systems				
4.1 CCTV				
System management	N/A	N/A	<i>Authority</i>	<i>Sub-hubco</i>
System architecture / design	<i>Sub-hubco to Authority approval</i>	<i>Sub-hubco</i>	<i>Authority</i>	<i>Sub-hubco</i>
CCTV cameras, detectors, scanners, access units	<i>Sub-hubco to Authority approval</i>	<i>Sub-hubco</i>	<i>Authority</i>	<i>Sub-hubco</i>
Monitors, multiplexes, control equipment hardware and software, recording equipment, servers	<i>Sub-hubco to Authority approval</i>	<i>Sub-hubco</i>	<i>Authority</i>	<i>Sub-hubco</i>
CCTV Equipment Room(s)	<i>Sub-hubco to Authority approval</i>	<i>Sub-hubco</i>	<i>Authority</i>	<i>Sub-hubco</i>
Containment and cabling	<i>Sub-hubco to Authority approval</i>	<i>Sub-hubco</i>	<i>Authority</i>	<i>Sub-hubco</i>
Testing & Commissioning	N/A	<i>Sub-hubco (with Authority in attendance)</i>	<i>Authority</i>	<i>Sub-hubco</i>
Final connections to hardware	<i>Sub-hubco to Authority approval</i>	<i>Sub-hubco</i>	<i>Authority</i>	<i>Sub-hubco</i>
4.2 Access systems (to be integrated with alarm system)				
Doors and restricted areas	<i>Sub-hubco</i>	<i>Sub-hubco</i>	<i>Authority</i>	<i>Sub-hubco</i>
Hold open devices to minimise door damage & fire risk, and optimise “openness” of internal spaces	<i>Sub-hubco</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>
4.3 Alarms (to be integrated with access control system)				
Intruder	<i>Sub-hubco to Authority approval</i>	<i>Sub-hubco</i>	<i>Authority</i>	<i>Sub-hubco</i>
Personal safety alarms	<i>Sub-hubco to Authority approval</i>	<i>Sub-hubco</i>	<i>Authority</i>	<i>Sub-hubco</i>
Equipment alarms (Authority)	<i>Sub-hubco to Authority approval</i>	<i>Sub-hubco</i>	<i>Authority</i>	<i>Sub-hubco</i>
Equipment alarms (Sub-hubco equipment)	<i>Sub-hubco</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>

Service / Technology	System Design	Construction / Provision	Management	Maintain/ Lifecycle Replace
Lift alarms, link to emergency base (REM or similar)	<i>Sub-hubco to Authority approval</i>	<i>Sub-hubco</i>	<i>Sub-hubco / Authority</i>	<i>Sub-hubco</i>
5. Wireless Network				
System management	<i>N/A</i>	<i>N/A</i>	<i>Authority</i>	<i>Sub-hubco</i>
System architecture / design including wireless surveys	<i>Sub-hubco to Authority approval</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>
Wireless Network Cabling Infrastructure	<i>Sub-hubco to Authority approval</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>
Containment and cabling	<i>Sub-hubco to Authority approval</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>
Wireless Access Points	<i>Sub-hubco to Authority approval</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
Wireless Access System (LAN Controllers, Wireless Control System and network interface/firewalls. This list is not exclusive).	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
Testing & Commissioning	<i>N/A</i>	<i>Sub-hubco (with Authority in attendance)</i>	<i>Authority</i>	<i>Authority</i>
Final connections to wireless network	<i>N/A</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
6. Intercom				
System management	<i>N/A</i>	<i>N/A</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>
System architecture/design	<i>Sub-hubco to Authority approval, refer Specific Educational Requirements</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>
Intercom System	<i>Sub-hubco to Authority approval</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>
Containment and cabling	<i>Sub-hubco to Authority approval</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>
Testing & Commissioning	<i>N/A</i>	<i>Sub-hubco (with Authority in attendance)</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>
7. Others				
Television / radio, common areas/client information systems – Group 1 Equipment as per Schedule Part 11, Equipment Schedule	<i>Sub-hubco to Authority approval</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>	<i>Sub-hubco</i>

11 Additional Specialist Requirements

An Authority should consider the addition of a separate Specialist Requirements chapter for project specific requirements i.e. a swimming pool or similar.

Guidance and drafting on swimming pools for consideration by an Authority is provided below:

11.1 Swimming Pools

11.1.1 General Requirements

In addition to those standards listed elsewhere in this Sub-Section C of Section 3 (*Authority's Construction Requirements*) of Schedule Part 6 (*Construction Matters*), subhubCo Proposals for the Swimming Pool shall be compliant with all relevant legislation, standards and Good Industry Practice, including, but not limited to:

- Pool Water Treatment Advisory Group publication, Swimming Pool Water Treatment and Quality Standards for Pools and Spas, 2009;
- BS EN 13451:2001 Swimming Pool Equipment part 1 'General safety requirements and test methods', part 3 'Additional specific requirements and test methods for pool fittings for water treatment purposes' and part 8 'Additional specific safety requirements and test methods for leisure water features';
- HSG 179, Managing Health and Safety in Swimming Pools, 2003;
- PAS 39 "Management of public swimming pools – Water treatment systems, water treatment plant and heating and ventilation systems – Code of practice";
- PAS 65 "Management of public swimming pools – General management – Code of practice";
- BS EN 15288-1:2008 Swimming pools Part 1: Safety requirements for design;
- Swimming Pool and Allied Trades Association (SPATA) guidance documents; and
- Relevant **sportscotland** guidance documentation.

An Authority, with its technical advisors, should consider and detail general requirement for the swimming pool including accessibility (for student and public use in and out of school operating hours, separation of changing rooms etc.), size of the pool (number of lanes etc.), minimum heights of pool hall and ancillary areas, security access arrangements (turnstiles, access controlled areas) etc.

11.1.2 Finishes and Corrosion Protection

Particular attention shall be made to the appropriateness and corrosion resistance of finishes and structural elements in the Swimming Pool and associated ancillary area environments (changing rooms, plant rooms etc.). All flooring shall be slip resistant. Steelwork shall be galvanised.

11.1.3 Engineering Requirements

In addition to the general mechanical and electrical engineering requirements listed in this chapter 8 of Sub-Section C of Section 3 (*Authority's Construction Requirements*) of Schedule Part 6 (*Construction Matters*), subhubCo shall allow for the following in respect of the Swimming Pool for the Facilities. SubhubCo shall appoint a Swimming Pool Specialist to design, co-ordinate, install and commission engineering services for the Swimming Pool facilities, including associated areas (adjoining changing rooms, plant rooms etc.)

SubhubCo's proposals for the Swimming Pool water services shall ensure that water is clear, attractive, free of odour, free of colour and safe under the maximum users as identified by the Authority.

In line with the standards, guidance and Good Industry Practice, subhubCo Proposals for the Swimming Pool shall include, but not be limited to, addressing the following:

- Water return and removal proposals;
- Straining systems;
- Pumping systems;
- Flocculation systems;
- Filtration systems;
- Treatment systems;
- Chlorination systems;
- pH control;
- Heating and environmental systems;
- Heat retention covers;
- Underwater lighting; and
- Design consideration of operation and maintenance requirements (suitable and safe access and arrangement measures).

SubhubCo shall provide drench showers, and associated hot and cold water services, for bunded chemical stores and water treatment plantrooms. Any drench showers shall be designed and installed by a specialist and shall be corrosion resistant, vertical type with pull rods.

SubhubCo shall ensure that co-ordination is undertaken with the Pool Specialist to ensure that all of the specialist pool plant is provided with suitable drainage where required, including the basins and drench showers in the plant rooms. Dilution systems shall be provided.

Luminaires within the Swimming Pool and associated changing areas shall be suitable to the swimming pool environment (including associated heat, moisture and chemical resistance) and sealed as required.

Mechanical ventilation and air conditioning proposals for the Pool Hall shall ensure air quality, heating/cooling and humidity is maintained and controllable in line with the standards and guidance, as well as the requirements set out in the Room Data Sheets. Mechanical ventilation systems shall be complete with energy recovery, and shall be designed by subhubCo to ensure as an energy efficient design solution as practicable to ensure the safe and effective running of the facilities.

The ventilation proposals shall ensure that the space is free of contaminants and odours. Ventilation supply and extract strategies, attenuation, filtration, heating/cooling and humidification/dehumidification proposals shall be designed to maintain a comfortable internal environment, and mitigate condensation in the space.

All services and Plant serving the Swimming Pool shall be safely accessible for maintenance, removal and replacement in line with the general principles described elsewhere in chapter 8 of Sub-Section C of Section 3 (*Authority's Construction Requirements*) of Schedule Part 6 (*Construction Matters*).

Areas directly adjacent to the Swimming Pool Hall, including changing facilities, shall be designed to be positively pressured towards the Swimming Pool Hall to mitigate contaminated air movement from the space.

Any mixed changing areas shall have full height cubicles and engineering services solutions to suit.

All services installed within the Swimming Pool Hall, and adjacent ancillary areas, shall be robust, corrosion resistant, and proved in use in a pool environment.

Sub-Section D – Operational Specific Requirements

1 Strategic Context

[An Authority to provide background information to the Project.

An Authority to consider the strategic aims of the Facilities at a local and national level, incorporating information from the New Project Request and Outline Business Case, providing the reader with a clear understanding of the need for the Facilities]

2 Facilities Overview

[An Authority to provide detailed information on the Facilities.

The information should be comprehensive and draw on the specific needs of the Facilities in order for Sub-hubco to be able to understand the functional and operational requirements and design Facilities which meet an Authority's needs.

Headings may consider Interfaces with Existing Facilities/Services, Facilities Design Ethos, Key Operations etc.

The information should be explicit on the clinical//educational model being implemented.

An overview of each area/department within the Facilities should be provided. An Authority shall be aware that detailed requirements for each area/department should be provided in Appendix B.

Specialist services/requirements within the Facilities which affect the clinical/educational services should also be detailed within this section, for example specific ICT or acoustic requirements]

3 Schedule of Accommodation

[An Authority to provide a briefing Schedule of Accommodation (SoA) for the Facilities listing out all departments and respective rooms in the Facilities.

*The SoA shall provide indicative/mandatory room, sized by an Authority to meet the needs and to undertake the required function of each space.*³

The SoA may be provided in any format, however it is anticipated it shall be in a matrix format using Microsoft Word or Excel]

4 Appendices

[An Authority to complete the following appendices respective to the Facilities requirements.

An Authority to provide additional appendices as it sees fit to provide relevant information to Sub-hubco on the needs of the Facilities]

³ An Authority may choose to discuss the SOA with Sub-hubCo with an eye to driving efficiency in areas through Sub-hubCo's design solution

Appendix A. Departmental Adjacency Matrix

The following table sets out the key relationships between the distinct departments within the Facilities:

Key

- Ess: Essential relationship, i.e. areas shall be immediately adjacent
- Des: Desirable relationship, i.e. areas shall be easy accessible from each other
- N/A: Non-essential relationship

	[Department Name 1]	[Department Name 2]	[Department Name 3]	[Department Name 4]	[Department Name 5]	[Department Name 6]	[Department Name 7]	[Department Name 8]
[Department Name 1]								
[Department Name 2]								
[Department Name 3]								
[Department Name 4]								
[Department Name 5]								
[Department Name 6]								
[Department Name 7]								
[Department Name 8]								

Appendix B. [Department Name]

[An Authority to complete a copy of this appendix for each department listed in Appendix A]

Sub Section E – Soft Fm Specific Requirements

1 Scope of Service

1.1 Scope of Service

The [Service Title] will be provided by the Authority [365(6) days a year] on a scheduled and reactive basis.

The [Service Title] will deliver *[include high level statement of the aims of the service]*

[High level statement on the management of the service including the location of any supervisory element]

[Include a high level bullet list of the service delivery elements. For example a cleaning service might set out the following service to all areas of the facility in order to maintain the specified standards, including:

[Routine and scheduled cleaning];

[Programmed cleaning];

[Ad-hoc / reactive requests];

[Increased cleaning of touch surfaces and sanitary areas at the request of the

[The monitoring and reporting of cleanliness];and

[Documentation associated with the service]

1.2 Specific Exclusions

The following services are excluded from the [Service Title] remit:

[include any specific exclusions that the service might provide, this could include elements such as Sub-hubco undertaking builders cleans]

2 Activity Indicators

[This should include a high level statement on the frequency of tasks that the service undertakes, including where this is linked to national or Authority standards]

2.1 Activity Level Projections

The table below sets out the anticipated level of activity of the [Service Title]:

Type of Activity	Anticipated Volume / Frequency
<i>[Activity description]</i>	<i>[Frequency per day/week]</i>

2.2 Operating Hours

The [Service Title] will operate *[insert number of days]* days a week, [including Bank Holidays (*delete as applicable*)]. It will be provided at times to minimise disruption to operational wards, departments and public areas. The operational hours of the [Service Title] may vary however it is anticipated that core hours will be approximately between [xx.xx] and [xx.xx] hrs.

2.3 Service Trends

The Facilities shall be designed to be capable of accommodating future developments as follows:

[Insert any known potential changes in the way the service will operate that might impact the design of the building e.g. moving to disposable items or moving from disposable items such that more or less storage is required]

3 Key Operational Processes

3.1 Overview

There will be a relationship between the [Service Title] and the:

[list all other services (with Sub-section E documents) that this service interacts with and might have requirements linked to this service]

3.2 Operational Processes

The [Service Title]s team will follow the processes detailed in *[Authority Operational Manual, National Standards, Industry guidance etc.]*.

[Sub-headings in the section should align with the headings for 2.1 Activity Level Projections]

3.3 [Activity 1]

[Insert description of duties undertaken within this category. This should detail staffing resource, transportation method and interaction with spatial requirements to allow Sub-hubco to understand why rooms will be required and how they will be used]

3.3.1 [Activity 2]

[Insert description of duties undertaken within this category. This should detail staffing resource, transportation method and interaction with spatial requirements to allow Sub-hubco to understand why rooms will be required and how they will be used]

3.4 Process Flow Diagram

[Insert process diagram that shows the routes associated with the workstream via each of the spaces specified in Section 4.2 below. This should include all aspects including the delivery of the service and delivery of consumables and supplies and the removal of any waste or returnable items. This should be annotated to indicate methods of transportation e.g. trolleys, cages etc and any return flows such as cleaned receptacles].

4 Key Facilities Requirements

4.1 General Requirements

Sub-hubco shall provide accommodation to allow the Authority to carry out the service. The minimum requirements are defined in this Specification, [the Schedules of Accommodation, Room Data Sheets (*delete as applicable*)].

The Facilities shall be designed to allow the [Service Title] to operate in accordance with [Sector Specific Bodies e.g. NHS Scotland or COSLA], Authority Operational Policies, government legislation and Good Industry Practice.

Sub-hubco shall also comply with the requirements with regard to the durability of / ability to clean finishes, the protection of walls, fixtures and fittings and the general design of circulation routes.

4.2 Accommodation Requirements

[The level of detail included in this section will be dependent on the level of detail and preparation of a number of other technical Schedules. As a minimum for each room type required a brief description of the purpose of the room and any specific functional requirements should be provided. Additional information may need to be added depending on the content and availability of other documents as follows:

Schedule of Accommodation, if no schedule of accommodation is available then indicative spatial requirements should be provided for each room type associated with the service to be included within the Facility and an indication of the quantity of same within each department within the Facility. If a Schedule of Accommodation is available this should be referenced and no spatial information included here;

Room Data Sheets, if no Room Data Sheets have been developed then indicative lists of contents and equipment should be included for each room type associated with the service to be included within the Facility. Where specific rooms require a slightly different equipment inclusion from standard then this should also be noted here. If Room Data Sheets are available these should be referenced and no contents and equipment information included here.]

Sub-hubco shall provide the accommodation requirements listed in the following table. The requirements are described in more detail below.

Room Name	Number of Rooms Required
[Room Name]	[[x] per department]
[Offices]	[[x] person office]
	[[x] person office]
	[[x] person office]
[Equipment Store]	[x]
[Bulk Store]	[x]
[Archive Store]	[x]

The [Service Title] will also require access to the following accommodation, the requirements for which are described elsewhere, as noted:

[List any areas described in other parts of Sub Section E to avoid duplication of spaces]

[Sub-headings in the section should align with the room names in the table above]

4.2.1 [Room Name]

Each [Room Name] should *[this should set out a description of what the room should allow for including what is to be accommodated, what storage is required and its use and access requirements]*.

4.2.2 [Office]

The office accommodation should be suitable to accommodate the specified number of occupants with workstations and storage provided.

The offices should be lockable

4.2.3 [Equipment Store]

This store should be suitable for the storage of equipment associated with the [Service Title] with appropriate finishes. The room should be secure *[any specific security requirement should align with Chapter 8 Security of Schedule Part 6, Section 3 Authority Construction Requirements, Sub-section C General Requirements]*. *[The doors should be double opening to allow access for large pieces of equipment]*.

4.2.4 [Bulk Store]

This store should allow access to and storage of consumables used in the provision of the service. With suitable access and egress for equipment and staff. This store should be secure *any specific security requirement should align with Chapter 8 Security of Schedule Part 6, Section 3 Authority Construction Requirements, Sub-section C General Requirements]*.

4.2.5 [Archive Store]

This store should allow access to and storage of records associated with the provision of the service, suitable storage systems should be provided to allow this. With suitable access and egress for equipment and staff. This store should be secure *[any specific security requirement should align with Chapter 8 Security of Schedule Part 6, Section 3 Authority Construction Requirements, Sub-section C General Requirements]*.

5 Key Departmental Relationships

5.1 General Requirements

The Facilities shall be designed to allow staff to reach their destination as easily and directly as possible, with minimal routes through public areas, and minimal routes through other clinical areas. The [Service Title] will require access to all areas of the Facility.

5.2 Relationships within Department

[The matrix below should be adjusted to take account of all room types specified in Section 4.2 above stating whether an adjacency is Essential, Desirable or Non-essential] This section can be removed if the spaces are included in a larger Facility wide adjacency matrix. If this is the case the matrix document should be referenced here.]

The facilities shall be designed with the appropriate adjacencies to [List any other services] and access to [list any specific areas that might be detailed in Schedule Part 6, Section 3 Authority Construction Requirements, Sub-section D Specific Non-Clinical/Non-Educational Requirements].

The following table sets out the key relationships between the distinct areas within the department:

Key

Ess: Essential relationship, i.e. areas shall be immediately adjacent

Des: Desirable relationship, i.e. areas shall be easy accessible from each other

N/A: Non-essential relationship

	[Room Name]	[x Person Office]	[x Person Office]	[x Person Office]	[Equipment Store]	[Bulk Store]	[Archive Store]	[Any rooms/spaces that are detailed in other Sub Section E documents that require to be factored in]
[Room Name]								
[x Person Office]								
[x Person Office]								
[x Person Office]								
[Equipment Store]								
[Bulk Store]								
[Archive Store]								
[Any rooms/spaces that are detailed in other Sub Section E documents that require to be factored in]								

6 Environmental and Building Services Requirements

6.1 General Requirements

Sub-hubco shall provide building services to allow Authority to carry out the [Service Title].

The minimum environmental and services requirements are defined in this Specification, [the Environmental Matrix and Room Data Sheets (*delete as applicable*)].

6.2 Specific Room Requirements

[As required for each room detailed in 4.2 Accommodation Requirements, this should set out any specific requirements such as high level power sockets, or a need for banks of sockets rather than sockets being spaced around the room, or highlight any specific temperature issues that might have been identified in the past]

APPENDIX B
Health Guidance Note
ACR Sub-Section A- E

Introduction

This document provides guidance to an Authority in completing SFT's education template for Sub-Section C (*General Requirements*) of Section 3 (*Authority's Construction Requirements*) of Schedule Part 6 (*Construction Matters*) for DBFM projects.

This guidance aims to provide clarity in the relevance of the template drafting to an Authority's Project and provide additional prompt notes for consideration, review and inclusion within the Project specific Sub-Section C drafting. The following guidance note contains the following sub-sections:-

- Contents Page
- Sub-Section A – Introduction
- Sub-Section B – Definitions & Abbreviations
- Sub-Section C – General Requirements
- Sub-Section D – Operational Specific Requirements
- Sub-Section E – Soft FM Specific Requirements

Value for Money

The guidance notes do not constitute a finalised set of requirements and the Authority should develop the ACR's to deliver best value. In developing the ACR's the Authority should:-

- Work collaboratively with Hub,
- Assess any proposed performance requirements deliver VfM
- Ensure the ACR's meet their functional requirements.
- Ensure the ACR's align to their budget and/or programme metrics.

Sub-Section A: Introduction

Section 3 (*Authority's Construction Requirements*) of Schedule Part 6 (*Construction Matters*) of the Project Agreement encompasses the construction requirements of the Authority and is divided into the following Sub-Sections and Appendices:

Sub-Section A Introduction

Sub-Section B Definitions and Abbreviations

Sub-Section C General Requirements

This Sub-Section contains overall philosophy and standards for the design, construction and finish and associated infrastructure, both internal and external to the Facilities.

Sub-Section D Specific Clinical Requirements

This Sub-Section contains design philosophy and specific requirements for each of the Clinical Services to be provided from the Facilities.

Sub-Section E Specific Non-Clinical Requirements

This Sub-Section contains Soft FM summary interface specifications and other Non-Clinical specifications related to the Facilities.

[Appendix A¹ Schedule of Accommodation Schedule]

[Appendix B Site Status/Redline Site Boundary Drawing]

¹ Appendices are suggested examples only. An Authority to consider incorporation of those listed Appendices, and other relevant documents, specific to the requirements of the Project.

Sub-Section B: Definitions & Abbreviations

The Authority can use this section to list all abbreviations within their Authority Construction Requirements. A suggested list of abbreviations are below:-

24/7/365	Twenty four hours a day, seven days a week, 365 days a year
ACRs	Authority's Construction Requirements
AEDET	Achieving Excellence – Design Evaluation Toolkit
AGSS	Anaesthetic Gas Scavenging System
AHU	Air Handling Unit
ANPR	Automatic Number Plate Recognition
ARP	Area Reception Point
B&ES	Building and Engineering Services Association
BIM	Building Information Modelling
BMS	Building Management System
BRE	Building Research Establishment
BREEAM	BRE Environmental Assessment Method
BS	British Standard
BSRIA	Building Services Research & Information Association
BPA	British Parking Association
CABE	Commission for Architecture and the Built Environment
C(C)HP	Combined (Cooling,) Heat & Power
CCTV	Closed-Circuit Television
CDM	Construction (Design & Management) Regulations
CEL	Scottish Government Chief Executive Letters
CEN	European Committee for Standardisation
Certified Wood	Timber certified by Forest Stewardship Council
CIBSE	Chartered Institution of Building Services Engineers
CIRIA	Construction Industry Research and Information Association

COSHH	Control of Substances Hazardous to Health
COSLA	Convention of Scottish Local Authorities
CP	Code of Practice
DDA	Disability Discrimination Act 2005
DfT	Department for Transport
DHW	Domestic Hot Water
DoE	Department of the Environment
DoH	Department of Health
DSR	Domestic Services Room
DTI	Department of Trade and Industry
EMS	Environmental Management System
EN	Euronorm Standards
EPC	Energy Performance Certificate
EPO	Emergency Power Off
FM	Facilities Management
GDBA	Guide Dogs for the Blind Association
GP	General Practitioner
HAI	Healthcare Associated Infection
HBN	Health Building Notes
HDL	Scottish Government Health Directorates Letters
HEI	Healthcare Environmental Inspectorate
HFN	Health Facilities Notes
HFS	Health Facilities Scotland
HGN	Health Guidance Notes
HIS	Health Improvement Scotland
HMSO	Her Majesty's Stationary Office

HSE	Health & Safety Executive
HTM	Health Technical Memoranda
HTN	Health Technical Notes
HVAC	Heating, Ventilation & Air Conditioning
HWS	Hot Water Supply
ICE	Institute of Civil Engineers
ICT	Information & Communication Technology
IDS	Intruder Detection System
IEE	Institution of Electrical Engineers
IES	Integrated Environmental Solutions
IT	Information Technology
LAN	Local Area Network
LEV	Local Exhaust Ventilation
LPCB	Loss Prevention Certification Board
NBS	National Building Specifications
NHS	National Health Service
NHSS	National Health Service Scotland
O&M	Operations and Maintenance
OFTEL	The Office of Telecommunications
PIR	Passive Infra-red
PoE	Power-over-Ethernet
PPE	Personal Protective Equipment
PPG	Planning Policy Guidance
PTS	Pneumatic Air Tube Transport Systems
RDD	Reviewable Design Data
RIBA	Royal Institute of British Architects

RNIB	Royal National Institute of Blind People
SEPA	Scottish Environment Protection Agency
SFPN	Scottish Fire Practice Notes
ShP	Sub-hubCo's Proposals
SFT	Scottish Futures Trust
SGHSCD	Scottish Government Health and Social Care Directorates
SHBN	Scottish Health Building Notes
SHFN	Scottish Health Facilities Notes
SHGN	Scottish Health Guidance Notes
SHoTN	Scottish Hospital Technical Notes
SHPN	Scottish Health Planning Notes
SHS	Scottish Healthcare Supplies
SHTM	Scottish Health Technical Memoranda
SHTN	Scottish Health Technical Notes
SI	International System of Units
SNH	Scottish National Heritage
SPP	Scottish Planning Policy
SUDS	Sustainable Urban Drainage System
TAS	Thermal Assessment Simulation
TfL	Transport for London
TPO	Tree Preservation Order
TRY	Test Reference Year
UPS	Un-interruptible Power Supplies
VDU	Visual Display Unit
VoIP	Voice over Internet Protocol (or Voice Over IP)
WC	Water Closet

WEEE	Waste Electronic and Electrical Equipment Regulations
WRAP	Waste & Resources Action Programme

The Authority can list out any definitions within this section. For the avoidance of doubt, the following list of definitions does not repeat defined terms etc. identified in the Project Agreement. Some suggested abbreviations include:-

Adjacency Matrices	Means the Adjacency Matrices, which sets out the adjacency requirements i.e. inter-departmental relationships (both definite and preferable) of the Authority for the Facilities, as defined in Sub-Section D (Specific Clinical Requirements) of Section 3 (<i>Authority's Construction Requirements</i>) of Schedule Part 6 (<i>Construction Matters</i>) of the Project Agreement
Corporate Greencode	Corporate GREENCODE® is a suite of software, templates and support materials developed by the NHS for the NHS. It is maintained by Health Facilities Scotland (HFS) to: <ul style="list-style-type: none">• guide you through the development and implementation of a corporate Environmental Management System (EMS); and• provide tools to help you run and maintain your corporate EMS.
Council	Means the [Local] Council
Firecode	Firecode consists of a number of Health Technical Memoranda (HTM) which consider policy, technical guidance and specialist aspects of fire precautions. Full list of HTM obtained from http://www.dh.gov.uk/en/Publicationsandstatistics/Lettersandcirculars/Firecode/DH_609
Travel Plan	Means the Travel Plan for the Site, detailed by the Authority, with input from Sub-hubCo
NHS Requirements	Means the requirements defined in chapter 2.3 of this Sub-Section C of Section 3 (<i>Authority's Construction Requirements</i>) of Schedule Part 6 (<i>Construction Matters</i>) as the same may be amended from time to time

Sub-Section C: General Requirements

Sub-Section C – Contents

Whilst it is expected an Authority will initially review and address all chapters and headings within the Sub-Section C template document, some chapters cover ‘subjective’ project requirements such as expectations of what the Facilities will deliver i.e. its ‘architectural vision’ and ‘building character’.

Subjective requirements, which cannot be captured in Sub-hubCo written or drawn proposals, should fall away from the finalised contractual ACRs at Financial Close.

Where an Authority has no requirements in respect of a chapter or sub-chapter heading, or where a chapter requirement falls away in Stage 2, the words “NOT USED” should be inserted.

Chapter Title	Page
1 Introduction	1
2 Project Wide Requirements	1
2.1 The Project	1
2.2 Approach to Design	1
2.3 Minimum Design and Construction Standards and Requirements	1
2.4 NHS Requirements	2
2.5 Hierarchy of Standards	2
2.6 Information Technology & Building Information Management (BIM)	2
2.7 Record Information	2
3 General Design Requirements	3
3.1 General Design Philosophy	3
3.2 Character & Innovation	3
3.2.1 Vision	3
3.2.2 Service Excellence	3
3.2.3 Architectural Vision	3
3.2.4 Design Innovation	3
3.2.5 Recognisable Quality	4
3.3 Internal Environment	4
3.3.1 Quality Environment	4
3.3.2 Light, Colour & Texture	4
3.4 Urban and Social Integration	4
3.4.1 Sense of Place	4
3.4.2 Neighbourhood & Community	4
3.4.3 [Existing Site Users]	5
3.4.4 Site Fit	5
3.5 Citizen Satisfaction	5
3.5.1 Design Concept and Aesthetics	5
3.5.2 Scale, Proportion & Composition	5
3.5.3 The Arts	5
3.6 Uses	6
3.6.1 Service Philosophy	6
3.6.2 Clinical & Non-Clinical Functionality	6
3.6.3 Human Dignity	6
3.6.4 Age Appropriate Care	6

	3.6.5[Ward Accommodation]	6
	3.6.6Work Flows & Logistics	7
	3.6.7Functional Relationships	7
	3.6.8Manual Handling	7
3.7	Adaptability & Expansion	7
3.8	Spaces	7
	3.8.1Accommodation Requirements	7
	3.8.2Floor Layouts	8
	3.8.3Equipment Requirements	8
	3.8.4Room Data Sheets	8
	3.8.5Interior Design	8
	3.8.6Space Standards	8
	3.8.7Unit Configuration	9
3.9	Infection Control	9
3.10	Staff and Client Safety / Anti-ligature / Self Harm	9
3.11	Anti-Vandalism	9
3.12	Security & Control	9
	3.12.1Secured by Design	9
3.13	Accessibility and Inclusion	10
4	Site Specific Requirements	11
4.1	The Existing Site	11
4.2	Site Boundary	11
4.3	Site Safety	11
	4.3.1[Retained Estate Site Safety]	11
4.4	Programming	12
4.5	Travel Plan	12
4.6	Existing Services	12
4.7	Demolition & Enabling Works Requirements	12
4.8	Phasing / Occupation	13
4.9	Construction Period Requirements	13
	4.9.1General	13
	4.9.2Control of Waste	13
	4.9.3Vehicle Access and Parking	13
	4.9.4Temporary Buildings for the Use of the Authority and its Professional Advisers	14
	4.9.5Protective Clothing	14
	4.9.6Working Hours	14
	4.9.7[Deliveries]	14
	4.9.8Schedule of Condition	14
	4.9.9Any contingency plans that Sub-hubCo must be aware of that may need to be accommodated in the event of emergencies	14
	4.9.10Construction Works outside of the Site	14
	4.9.11Control of Noise and Dust	15
	4.9.12Meetings with Immediate Neighbours	15
	4.9.13Meetings with the Authority during the Construction of the Works	15
	4.9.14Restrictions on Images and Videos during Construction of the Works	15
	4.9.15Restrictions and requirements on continuity of existing services. Procedures to be followed for reporting any accidental damage to or loss of services.	15
	4.9.16Site boundary and signage treatment requirements	15

	4.9.17	Outside of Site – “Access to Site” signage restrictions	16
	4.9.18	Restrictions on Site accommodation	16
	4.9.19	Clean Roads and Footpaths	16
	4.9.20	Oversailing Activities	16
	4.9.21	Workmanship, Construction Accuracy & Tolerances	16
4.10		Site Security	17
	4.10.1	Notices	17
	4.10.2	Site Security out-with Operational Hours	17
	4.10.3	Safety of Authority Related Parties and the Public	17
4.11		Operational Disruption & Continuity of Service	17
	4.11.1	[Continuity of the Retained Estate]	17
	4.11.2	Continuity of Existing Services	17
	4.11.3	Fire Access	18
4.12		Completion Requirements	18
5		General Construction Requirements	19
	5.1	Schedule of Life Expectancies	19
	5.2	Infection Prevention & Control	19
	5.3	Building Air Tightness	19
	5.4	Building Envelope	19
	5.5	Acoustics	19
	5.6	Authority Testing and Sampling	20
	5.6.1	Mock Up Rooms	20
	5.6.2	Testing of Samples	20
	5.6.3	Build Quality	20
	5.7	Integration with Engineering Services	21
	5.8	Wayfinding and Signposting	21
	5.9	Internal Areas	22
	5.10	Ceilings, including Heights & Voids	22
	5.11	Floors	22
	5.12	Roofs	22
	5.13	Walls	23
	5.14	Corridor Widths and Heights	23
	5.14.1	Handrails	23
	5.15	Doors and Frames	23
	5.16	Vision Panels	24
	5.17	Windows	24
	5.17.1	Curtain Walling	25
	5.18	Finishes	25
	5.18.1	General Finishes	25
	5.18.2	Walls / Partitions	25
	5.18.3	Flooring	25
	5.18.4	Finishes Quality	26
	5.19	External Materials	26
	5.20	Architectural Hardware	26
	5.20.1	Ironmongery	27
	5.20.2	Locks and Locking	27
	5.20.3	Blinds & Curtains	27
	5.21	Sanitary Ware	28
	5.22	Staircases, Ramps, Balustrades, Walkways, Balconies & Lifts	28

5.23	Protection	28
5.24	Static Discharges	28
5.25	Standardisation & Prefabrication	28
5.26	Materials	29
5.27	Sustainability	29
	5.27.1BREEAM	29
5.28	Energy Strategy	29
5.29	Fire Planning Strategy	30
5.30	Storage of Gas Cylinders	30
5.31	[Radiation Protection]	30
5.32	[Static Magnetic Field Protection]	31
5.33	[Electromagnetic Interference Protection]	31
5.34	Facilities Maintenance	31
5.35	Pest Control	31
6	Civil & Structural Engineering Requirements	32
6.1	General Requirements	32
6.2	Architectural / Structural Interface	32
6.3	Performance Standards	32
6.4	Loadings & Structural Flexibility	33
6.5	Foundations & Sub-structure	33
6.6	Earthworks	33
6.7	Movement Joints	33
6.8	Building Super-Structure & Envelope	34
6.9	Fire & Corrosion Protection	34
6.10	Durability & Maintainability	34
6.11	Drainage	35
7	External Works	36
7.1	Security	36
7.2	Soft Landscaping Requirements	36
	7.2.1General	37
	7.2.2Planting Areas	37
	7.2.3Soil Preparation & Topsoil	38
	7.2.4Trees	38
	7.2.5Shrubs & Groundcover	38
	7.2.6Planting & Watering	38
	7.2.7Turf	39
	7.2.8Health & Safety Considerations	39
7.3	Hard Landscaping Requirements	39
	7.3.1Fire Assembly Area	40
7.4	Private Open Space Courtyards / Therapy Gardens	40
7.5	External Facilities	40
7.6	External Equipment and Furniture	41
7.7	Site Boundary Requirements	41
7.8	Site Access & Circulation	41
	7.8.1Vehicular Access	42
	7.8.2Emergency Vehicle Access	42
	7.8.3Service Vehicle Access	42
	7.8.4Pedestrian Access	42

7.9	Roads, Footpaths, Cycleways and Car Parking	42
	7.9.1 Road Markings & Signage	42
	7.9.2 Cycleways and Cycle Storage	43
	7.9.3 Car [and Motor Bike] Parking	43
	7.9.4 Disabled / Accessible Parking	43
	7.9.5 Drop-off / Pick-up Arrangements / [Public Transport Access and Stops]	43
8	Mechanical & Electrical Engineering Requirements	44
8.1	Minimum Engineering Standards	44
8.2	Energy Centres and Plant Areas	44
8.3	Infection Control and Safety	44
8.4	Engineering Services Interface with Building Fabric	44
8.5	[Unrestricted Access to Patients]	45
8.6	Performance Standards	45
	8.6.1 Energy Performance	45
	8.6.2 External Design Conditions	46
	8.6.3 Internal Design Conditions	46
	8.6.4 Thermal Comfort	46
	8.6.5 Air Quality	47
	8.6.6 Vibration	47
	8.6.7 Acoustics	48
	8.6.8 Daylight	48
8.7	Incoming Services	48
	8.7.1 General	48
	8.7.2 Security of Incoming Supplies	49
	8.7.3 Provision for Isolation	49
8.8	Mechanical Systems	49
	8.8.1 Building Management Systems & Controls	49
	8.8.2 Main Water Connection to the Site	51
	8.8.3 Site Mains Water, Fire Water, Quality & Distribution	51
	8.8.4 Choice of Fuels	52
	8.8.5 Gas Installations	52
	8.8.6 Heating System	52
	8.8.7 Domestic Water Services	52
	8.8.8 Hot Water Supply	53
	8.8.9 Mechanical Ventilation, Air Conditioning and Comfort Cooling	53
	8.8.10 Combined Heat and Power	53
	8.8.11 Medical Gases	54
	8.8.12 Medical and Dental Vacuum	54
	8.8.13 Anaesthetic Gas Scavenging System	54
	8.8.14 Non-Medical Gases	54
	8.8.15 Bedhead Services	54
	8.8.16 Sterilisation	54
	8.8.17 Special Water Services	54
	8.8.18 Laboratory Gases	55
	8.8.19 Local Exhaust Ventilation Systems	55
	8.8.20 Fume Cupboard & Micro-biological Safety Cabinets	55
	8.8.21 High Specification Air Conditioning Systems	55
	8.8.22 Ventilation and Air Conditioning of Isolation Rooms	55
	8.8.23 Pneumatic Air Tube Transport Systems	55

	8.8.24	Drainage	55
	8.8.25	Fuel Storage Tanks	55
8.9		Electrical Systems	56
	8.9.1	Main & Sub-Main Distribution	56
	8.9.2	Standby Generation	56
	8.9.3	Uninterruptible Power Systems	56
	8.9.4	Electrical Small Power	57
	8.9.5	Lighting	57
	8.9.6	Interior Lighting	57
	8.9.7	Exterior Lighting	58
	8.9.8	Lighting Control & Wiring	58
	8.9.9	Emergency Lighting	58
	8.9.10	Standby Lighting	58
	8.9.11	Lifts	59
	8.9.12	Clock Installations	59
	8.9.13	Disabled Refuge Call System	59
	8.9.14	Induction Loop	59
	8.9.15	Intercoms	59
	8.9.16	Video Telemetry	59
	8.9.17	Public Telephone Ordering Service	59
	8.9.18	Electric Vehicle Charging	59
8.10		Security	60
	8.10.1	General	60
	8.10.2	Staff Attack / Assistance Systems	60
	8.10.3	Nurse Call Systems	60
	8.10.4	Patient and Equipment Tracking System	60
	8.10.5	Alarms & Intruder Detection System	60
	8.10.6	Security Access Control	61
	8.10.7	CCTV	61
	8.10.8	Clinical Service Equipment	61
	8.10.9	Car Park Barriers	62
8.11		TV & Radio Facilities	62
8.12		Lightning Protection & Earthing	62
8.13		Fire Detection & Suppression Systems	62
8.14		Engineering Flexibility & Zoning	63
8.15		Services Capacity Reserve	63
8.16		Service Routes	64
8.17		Commissioning & Testing	64
9		Information and Communications Technology (ICT) Requirements	65
	9.1	Introduction	65
	9.2	Overall Requirements	65
	9.3	Design Requirements	65
		9.3.1 User / Functional Requirements	65
		9.3.2 System Availability	65
	9.4	Minimum Engineering Standards	65
	9.5	Server and Node Rooms	66
	9.6	Structured Cabling System	66
		9.6.1 Cabling	66
		9.6.2 Fibre Optic Cabling	66
		9.6.3 Data Patch Panels	66

	9.6.4Data Outlets	67
	9.6.5Ancillaries	67
	9.6.6Telephony tie cables	67
	9.6.7Outlet identification definition	67
9.7	Wireless Network	67
9.8	External Services	68
	9.8.1Communication & Connectivity with Retained Estate Infrastructure	68
9.9	Programming of Works	68
10	Specialist Services Responsibilities Matrix	69
11	Additional Specialist Requirements	75

1 Introduction

An Authority should state the Project name and location.

2 Project Wide Requirements

2.1 The Project

An Authority should provide a summary of the Project. Consideration to be given to detailing:

- A mission statement – context as to why the project is required;
- Setting of the project in national and local policy; and
- Type of care / health services to be provided and strategic objectives in their successful delivery.

2.2 Approach to Design

An Authority should detail its approach to design for the project.

The following examples are issues which may be covered:

- Who will manage the process i.e. the Authority Representative, Senior Responsible Officer and/or Project Board? Detail should include how they wish to engage with Sub-hubCo
- The need for engagement with Authority review teams
- Which other service providers requirements need to be met/addressed out with the Authority i.e. NHS Scotland, Health Facilities Scotland, local authorities or community based services
- The need for formalised reviews by Architecture and Design Scotland (A+DS) and Health Facilities Scotland (HFS), including which stages of the process reviews must be conducted.
- The use of NHS Estates Achieving Excellence Design Evaluation Toolkit (AEDET) in evaluation and how the Authority's review team shall use AEDET as a structure to monitor agreed standards through all stages from design to completed construction and operation.
- Need for accreditation to BS EN ISO 14001 "Corporate Greencode" and how Sub-hubCo must approach the Facilities to show and maintain the ethos of Corporate Greencode credentials.
- Any Territory specific design initiatives which should be detailed

2.3 Minimum Design and Construction Standards and Requirements

The drafting should include a non-exhaustive list of minimum construction standards and requirements for a project. An Authority, with its relevant advisory teams, shall review all standards and requirements respective of the Facilities and the Site. Refer to Appendix C section 1 for suggest list of standards.

2.4 NHS Requirements

NHS Requirements are specific Health related guidance and standards which an Authority requires Sub-hubCo to comply with in the design and construction of the Facilities. Refer to Appendix C section 1 for a non-exhaustive suggested list of standards.

An Authority shall further include relevant guidance as required specific to the Facilities.

2.5 Hierarchy of Standards

An Authority should consider detailing a hierarchy for adoption of standards and guidance which may include:-

- Specific Scottish Health standards taking precedence over equivalent English & Welsh standards, unless agreed otherwise with the Authority.
- Where there is any conflict between two or more standards/documents, the higher standard shall be adopted, unless specifically agreed otherwise with the Authority.

2.6 Information Technology & Building Information Management (BIM)

An Authority should consider its requirements for the use of Information Technology and BIM in the project. Requirements should consider the extent of BIM used by Sub-hubCo for calculations, modelling, drawing and record information.

BIM is a digital representation of physical and functional characteristics of a facility. BIM provides a platform for shared knowledge and resource to help form a reliable basis for decisions on the Facilities design and lifecycle requirements, from conception to demolition.

An Authority shall detail the proposed "Level" of BIM required.

Good practice (and a UK Government target for all projects by 2016) is the provision of BIM to a minimum of "Level 2" as detailed in RIBA's "BIM Overlay to the RIBA Outline Plan of Work" 2012 as detailed here - <http://www.ribabookshops.com/uploads/b1e09aa7-c021-e684-a548-b3091db16d03.pdf>

An Authority may consider detailing the requirements of the level of BIM information provided, and access given to the Authority, during the Project Set-Up, Pre-Construction Information, Construction, Operational and Hand Back phases.

BS 1192 'Collaborative production of architectural, engineering and construction information. Code of practice' and PAS 1192-2 'Specification for information management for the capital/delivery phase of construction projects using building information modelling' set standards for the delivery of BIM.

2.7 Record Information

An Authority should consider what record information they require to receive at completion, in what format and in what quantity.

An Authority should discuss with Sub-hubCo how electronic format record information shall be stored. The Authority should consider the requirement for a 'data room' for the storage and management of record documents. Data rooms are a secure online database facility which allow managed online access for all invited individuals/parties – usually managed by the Authority with information uploaded by Sub-hubCo. There are usually license fees associated with 3rd party data room systems.

3 General Design Requirements

Chapter 3 sets out the general design and vision requirements of the Authority for the Facilities. In a number of instances, the requirements are subjective, meaning they may fall away from the final contractual document, however should still be stated by an Authority early in the design stage to inform Sub-hubCo of particular Authority and User strategic aims and aesthetical considerations that should be addressed in design solutions.

Such requirements may be available from existing project documents, including the New Project Request or the Outline Business Case, as well as good practice guidance documents.

3.1 General Design Philosophy

An Authority should detail the high level general design philosophy/ethos/requirements specific to the Project. Examples include:

- Requirement for Facilities that ‘enhance the quality, accessibility and range of health services available to the local community’;
- Facilities that are ‘inclusive to all’, ‘appropriate to the local environment’ etc.; and
- Particular sustainable requirements / targets to be met.

3.2 Character & Innovation

3.2.1 Vision

An Authority should detail its vision for the Facilities, now and for the future. Examples include:

- The need for the Facilities to be ‘modern’, ‘safe’ and/or ‘welcoming’; and
- Facilities that ‘signal the high value placed on healthcare’.

3.2.2 Service Excellence

An Authority should detail its design philosophy for the Facilities to enable the provision of excellent service, linked to the specific requirements and clinical model for the Facilities as detailed in Sub-Section D. Example:

- How the Facilities design can help provide differing dimensions of care, i.e. centred on patients and providing a safe, effective, efficient environment to carry out the service(s)

3.2.3 Architectural Vision

An Authority should detail its architectural vision and key architectural component requirements for the Facilities. Examples include:

- How the composition of buildings / interior design / natural light / materials / colours / images etc. should contribute to achieving a therapeutic environment etc.

3.2.4 Design Innovation

An Authority should detail its requirement for the inclusion of current and developing innovations in education.

The Authority should state its acceptance, or not, of prototype building elements in the design of the Facilities i.e. the need for all building elements proposed to have been proven in use in existing facilities.

3.2.5 Recognisable Quality

An Authority should outline their requirement for quality of design, for example the requirement for external materials to be detailed and selected to ensure they are resistant and retain their appearance through the Project life within a compatible maintenance regime.

3.3 Internal Environment

3.3.1 Quality Environment

An Authority should detail its design philosophy for a quality environment for the Facilities. Examples include:

- How spaces may be ‘well lit’, and ‘open’;
- How the Facilities shall provide thermal comfort, good air quality and effective acoustics; and
- How spaces may interact within the building and with the external environment, including views out etc.

3.3.2 Light, Colour & Texture

An Authority should detail its design philosophy in respect of the use of light, colour and texture in the Facilities. Examples include:

- How spaces should / may use colour, decoration, art etc. to facilitate an ‘identity’ for the Facilities; and
- How light, colour and texture shall be co-ordinated in the interior design and building construction to create Facilities that complement the Authority’s services (for example toning down light and colour in areas for recovery and rehabilitation or including bright colours for stimulation in activity rooms).

Facilities for the elderly /dementia care may seek guidance from the University of Stirling’s Dementia Services Development Centre, Dementia Design Series guides for light, colour and texture design philosophies for the elderly

3.4 Urban and Social Integration

3.4.1 Sense of Place

An Authority should detail its philosophy for the Facilities in respect to creating a ‘Sense of Place’. Examples include:

- If the Facilities should provide a frontage to ‘stand out’ or ‘fit in’ with the local built environment; and
- The need for Reception areas to be easily identifiable to public, users and staffs.

3.4.2 Neighbourhood & Community

An Authority should detail its philosophy for the Facilities in respect of its fit with the local neighbourhood and community. Examples include:

- How the Facilities should be considered a ‘good neighbour’ i.e. not dominating the local built environment or detracting from local points of interest

3.4.3 [Existing Site Users]

An Authority only requires this section where there are operations or Services upon the Site prior-to or during construction i.e. the heading and drafting is not relevant to green field sites.

Where existing site users are identified, an Authority should consider its requirements to maintain a quality environment where they may be affected by the Works. Further detail may be provided in chapter 4 of this Sub-Section C.

3.4.4 Site Fit

An Authority should detail its requirements for how the Facilities building and landscaping design should fit within the Site. Examples include:

- How the Facilities should interface with the local built and natural environment/landscape.

3.5 Citizen Satisfaction

3.5.1 Design Concept and Aesthetics

An Authority should consider the philosophy for the Facilities design to provide staff, user, visitor and public satisfaction. Examples include:

- How the Facilities should exploit local environmental qualities (views etc.); and
- How the Facilities should enhance the local environment via its form and aesthetics.

3.5.2 Scale, Proportion & Composition

An Authority should consider how the Facilities form should be expressed. Examples include:

- How the building composition should (or not) express the buildings function; and
- How functional parts of the building (stair towers, plant rooms etc.) should express form but not detract from the overall building design.

3.5.3 The Arts

An Authority should consider its requirements for the integration of art into the architecture and landscape of the Facilities. Examples include:

- The need for interfaces in Sub-hubCo's design (be it structure, building services, landscaped design) to accept Authority artwork.

An Authority should further consider any requirements for an 'Arts Co-ordinator' or similar position, and detail how this person/team should be integrated with the project development and Facilities design.

3.6 Uses

3.6.1 Service Philosophy

An Authority should consider providing a summary of the services activities to be undertaken in the Facilities. This may be provided in bullet point form.

An Authority should provide a reference to Sub-Section D which will set out the full service philosophy for each activity of the Facilities.

3.6.2 Clinical & Non-Clinical Functionality

An Authority should list the needs of the Facilities to enable Clinical and Non-Clinical functionality.

Examples being that the Facilities shall:

- Function efficiently, effectively and economically to achieve the optimum balance between capital cost of the Facilities and the Authority's operating costs and to meet and satisfy all of the requirements and obligations set out in these Authority's Constriction Requirements to ensure that the Facilities are sustainable well into the future and as a minimum for the whole of the Operational Term;
- Minimise the Authority's operating costs;
- Demonstrate that the design fully reflects the individual needs for each user group in terms of access, functional relationships and planning; and
- Interface easily with other service providers in particular the wider services provided by the Authority.

3.6.3 Human Dignity

An Authority should consider its requirements for appropriate levels of privacy and design solutions for inclusion of all. Example:

- Any needs for the Facilities to cater for those using the Facilities with a particular requirement or disability i.e. views out to cater for patients in wheelchairs, clinical rooms acoustics and vision panels to respect patient confidentiality etc.

3.6.4 Age Appropriate Care

An Authority should consider its requirements for age appropriate care, for example any need for following guidance within the Dementia Design Standards for healthcare facilities serving the elderly (wander routes etc.)

3.6.5 [Ward Accommodation]

This chapter is only relevant to where in-patient wards are a requirement of a Project.

An Authority should consider its requirements in relation to ward separation / single room accommodation for the Facilities. This should be considered with clinicians and in line with the clinical model being implemented (i.e. are rooms to be provided in wards or single bedded rooms, should rooms be single room accommodation should they be considered in an interlocking or in board design)

3.6.6 Work Flows & Logistics

An Authority should consider its requirements for work flows in the Facilities, for example:

- Any specific needs of circulation spaces and vertical transport, and how these should be sized
- Any need for segregation of certain services including waste movement from clinical activity

3.6.7 Functional Relationships

An Authority should ensure the Adjacency Matrices, as detailed within the template Sub-Section D (Specific Clinical Requirements), are completed, or reference to such matrices amended within the template drafting.

3.6.8 Manual Handling

An Authority should consider the requirement for sub-hubCo to design the Facilities to deal with manually handling inanimate objects / patients and / or transport patients and the need for sub-hubCo to consider the obligations within the Manual Handling Operations Regulations 1992 (as amended) in undertaking its design.

3.7 Adaptability & Expansion

An Authority should consider specific requirements for adaptability and any future expansion of the Facilities.

For example, an Authority should consider whether it is likely that foreseeable policy, service advancements and technological changes may impact on the operation of the Facilities, and whether there is a requirement for particular areas of the Facilities to enable physical internal layout re-arrangement and/or building services changes during its lifetime. An Authority should further consider whether expansion zones are required to be identified.

Where potential physical / services re-arrangement for particular areas of the Facilities is identified by an Authority, an Authority should list the locations of such areas within this chapter, for discussion with Sub-hubCo during the early design stages.

Drafting shall also be included to obligate Sub-hubCo to provide an 'Adaptability Strategy' as part of Sub-hubCo's Proposals which shall address the way in which the structural grid, construction technique, structure, service penetrations and engineering services strategy has been designed and co-ordinated for the highlighted areas to enable expansion, adaptation and flexibility.

3.8 Spaces

3.8.1 Accommodation Requirements

An Authority should include the Schedule of Accommodation within the Appendices of the document.

An Authority should consider an allowable variation of the briefed area, subject to Sub-hubCo proving the functionality of each room. For example, a 5% increase or decrease per room, but no reduction in net departmental areas.

3.8.2 Floor Layouts

The Authority should state its requirement for floor layouts to comply with all associated adjacency and occupational requirements. The Authority should ask that the proposals seek to delivery efficiencies within the project.

3.8.3 Equipment Requirements

An Authority should consider its requirements for the environmental, interface and construction requirements that Sub-hubCo should consider for Equipment. Reference should be made to the Equipment list in Schedule Part 11 of the Project Agreement.

An Authority should consider its requirements for Equipment to operate efficiently, effectively and with their intended function for its design life. Furthermore, an Authority should consider:

- Specifying the needs for any specialist equipment required in the Facilities, for example increased structural loading in certain rooms and provision of dedicated associated 'strong access routes' for particularly heavy equipment.
- The need for Authority involvement in the choice of certain items of equipment, and whether or not to provide output specifications within Schedule Part 11 (Equipment) where there are benefits to the Authority in doing so i.e. standardisation, compatibility, staff familiarity and particular requirements for product quality

3.8.4 Room Data Sheets

An Authority to make reference to Sub-hubCo providing Facilities which meet the requirement of the Room Data Sheets in Schedule Part 6 Section 6 of the Project Agreement. An Authority should have sight and input to such requirements.

3.8.5 Interior Design

An Authority should consider its requirements for Sub-hubCo to provide an interior design strategy for the Authority's review and comment, provided in sufficient time for consultation with Users and for incorporation in to the final scheme.

In addition to an Interior Design Strategy presented by Sub-hubCo, an Authority should also refer to Section 5 (Reviewable Design Data (RDD)) of Schedule Part 6 (Construction Requirements) which will set out an Authority's requirements in relation to what aspects of detailed design it wishes to see Post-Financial Close, and in what format i.e. samples/images.

3.8.6 Space Standards

An Authority should consider its space standard requirements for the Facilities. Examples:

- If there is a need to provide increased internal and external spaces over areas prescribed in codes of practice, regulations and guidance in order that the appropriate provision of space in particular areas supports the Authority's operations
- How spaces should interface to offer improved function, such as access to external areas or provision of space for informal break-out and discussion from particular areas etc.

3.8.7 Unit Configuration

An Authority to consider its requirement for separation and zoning of Users into specific areas of the Facilities to respond to the needs of observation, case mix, dealing with infectious conditions etc.

3.9 Infection Control

An Authority should include the position/team relevant to infection control of the Facilities. Specific design requirements in relation to infection control are addressed in Chapter 5 of this Sub-Section C.

3.10 Staff and Client Safety / Anti-ligature / Self Harm

An Authority should consider the relevance of this chapter in relation to the function of, and Service carried out in, the Facilities.

An Authority may consider noting in a Schedule of Accommodation where anti-ligature design is a requirement.

Examples of anti-ligature design requirements which may be considered include:

- User accessible door handles must not have traditional thumb turns;
- The room shall be designed to allow the clinician to be positioned closest to the exit door of the room when consulting with, or treating, a client;
- Sharp edges must be avoided wherever possible;
- All mastic used throughout the Facilities to be pick resistant;
- It must be possible for staff to lock-off en-suites and manually override any locks applied by patients as appropriate; and
- Anti-barricade doors shall be used in certain locations.

3.11 Anti-Vandalism

An Authority should request that Sub-hubCo consider measures to limit vandalism risk as far as practicable possible. Sub-hubCo shall also comply with the requirements contained within Sub-Sections D and E of Section 3 (Authority's Construction Requirements) of Schedule Part 6 (Construction Matters) in determining the extent and scope of these measures.

3.12 Security & Control

An Authority should detail particular security and control issues relative to the Facilities i.e. particular concerns associated with certain areas of, or access to, the Site, such as routes likely to be used during the hours of darkness.

Particular design requirements, for example Access Control and CCTV are covered in Chapter 8 of this Sub-Section C

3.12.1 Secured by Design

An Authority should confirm the relevant Local Police Force's reporting person for the project.

3.13 Accessibility and Inclusion

An Authority should consider and detail particular aspects of the physical environment relating to the accessibility of the Facilities. Examples for consideration include:

- Clearly identifiable entrances to promote ease of wayfinding and which incorporate distinctive ‘landmarks’;
- Access to buildings, such as level or ramped entry;
- Emergency evacuation arrangements, in particular for the visually impaired and the disabled, such as fire refuges or alternative escape routes for people with mobility impairments;
- The accessibility of external paths and landscaping and the location of “rest areas” on all external routes;
- Circulation within buildings, including their interior layout;
- Effective lighting and signage (principles included in the ‘Sign Design Guide – a guide to inclusive signage’, which is jointly published by the Sign Design Society (SDS) and the Royal Institute of Blind People (RNIB));
- Colour or tone contrast on doors to aid orientation;
- Desks, work surfaces and reception desks at varying or flexible heights;
- Appropriate seating;
- Accessible toilets; and
- Convenient and controlled proximity parking.

4 Site Specific Requirements

Chapter 4 sets out the Authority's Site and construction period specific requirements. Construction period requirements take the form of simplified preliminaries which Sub-hubCo shall follow, as a minimum, in delivering the Project. In completing chapter 4, an Authority may seek additional guidance from its estate team and/or technical advisors.

4.1 The Existing Site

An Authority should provide information on the existing Site, including, but not limited to:

- Approximate area;
- Any Retained Estate;
- Existing local buildings and interlinking structures;
- Access to and on to the Site; and
- General condition of the land.

4.2 Site Boundary

An Authority should provide and make reference to Site Status/Redline Site Boundary drawings for the Works to provide clarity of what constitutes the DBFM Site and what constitutes retained Authority Estate or public land.

4.3 Site Safety

An Authority should consider detailing its requirements for Site safety including:

- Segregation of building works from 'live' Authority or neighbour activities
- Site inspection and reporting requirements, including periodic Authority meetings/briefings
- Any specific Site safety requirements as required i.e. particular induction requirements and any specific requirements of an Authority's Health and Safety Officer, or similar persons.

4.3.1 [Retained Estate Site Safety]

This chapter should only be considered for Sites where the Authority retains land, operations, services and personnel adjacent or local to the Site.

An Authority should consider detailing its requirements for Retained Estate Site Safety including:

- Any segregation of the Works from Retained Estate activities/infrastructure/ access
- Any appointment of a Retained Estate representative for reviews/meetings with Sub-hubCo on maintaining safety and recording risks and performance
- Process for Sub-hubCo notifying any of work within the Retained Estate to enable the Authority to facilitate the works safely
- Stipulating any background checks required for Sub-hubCo operatives relative to working on an existing Sites with vulnerable users.

4.4 Programming

An Authority should consider its project programme requirements. Aspects an Authority should consider include:

- The format Sub-hubCo should present and report on programme, including the need to highlight specific deliverable dates
- The level of detail programmes should be presented for differing works phases and sub-packages
- Any sequencing requirements of an Authority
- Any set timescale requirements for the Project i.e. when works should/shouldn't be undertaken
- Any programme requirements of the Authority being identified i.e. when Equipment provided by and/or installed by the Authority is required by

4.5 Travel Plan

An Authority should consider its requirements in relation to production of a Travel Plan for the Site and how the Facilities should adapt any particular requirements from this Travel Plan, i.e. cycle routes/storage.

Guidance is available within the SEHD document, 'Travel Plans: An Overview, September 2002' and the HFS document SHTM 07-03, 'Transport Management and Car Parking'.

4.6 Existing Services

An Authority should provide and reference any existing services drawings where they are available.

An Authority should be clear that any information provided on existing services are for information only and that Sub-hubCo should satisfy itself with, through its own surveys or otherwise, the nature, location and condition of existing services upon the Site.

4.7 Demolition & Enabling Works Requirements

An Authority should consider detailing any demolition and enabling works required to be carried out by Sub-hubCo, or any works that the Authority will undertake as part of the demolition and enabling works. Regardless of works undertaken by an Authority, the obligation to ensure the Site is clear and safe should remain Sub-hubCo's responsibility.

As part of the drafting, an Authority to consider its requirements for dilapidation surveys and /or protection measures for specific areas of the Site, i.e. existing buildings, trees.

4.8 Phasing / Occupation

An Authority should consider, with its technical advisors, any phasing requirements for the Facilities – see sub-chapters below.

(i) Beneficial Access

An Authority should consider, with its technical advisors, its requirements in relation to early access to specific areas/elements of the Facilities, such as to facilitate beneficial access to installing ICT hardware [3] months prior to Handover to enable such services to be installed and commissioned in advance of the Handover date etc.

(ii) Early Handover

An Authority should discuss and agree early handover of particular areas of the Facilities with Sub-hubCo where this is of benefit to one or both parties.

Where early handover of particular areas of the Facilities are agreed, an Authority should consider the associated needs to accommodate early handover of that element or area and the Services it will provide, i.e. appropriate car parking or travel arrangements also being in place.

An Authority should further consider on-going works associated with the construction and commissioning of the remainder of the Facilities to ensure they do not impact on the operational capabilities of the initial Services made available to the Authority.

4.9 Construction Period Requirements

4.9.1 General

An Authority to consider its general construction period requirements, similar to setting Preliminary Specification requirements.

An Authority should further consider issues in relation to working on a live Site where there shall be an operational Retained Estate, such as Sub-hubCo developing and providing a Disruption Management Plan prior to commencement on Site to mitigate disturbance.

4.9.2 Control of Waste

In addition to requiring general Good Industry Practice in the control of waste, an Authority should consider, and where necessary detail, any Authority specific waste management procedures which are relevant to the Project / Site.

4.9.3 Vehicle Access and Parking

An Authority to consider its requirements for vehicular access and parking during the construction stage including any Site traffic management plan requirements, car parking finishing/material requirements and restrictions on the location of vehicular parking i.e. in designated car parking areas only.

An Authority should consider any Site constraints which may affect construction vehicle activity (maximum size of vehicles etc.) and to obligate Sub-hubCo to approve proposals for such vehicular activity in advance with the Authority.

4.9.4 Temporary Buildings for the Use of the Authority and its Professional Advisers

An Authority should consider the need for on-site office accommodation based on project size and/or potential to use existing local premises as temporary offices – there will be costs associated with the provision/ construction and maintenance of on-site offices by Sub-hubCo which may not be necessary.

Where deemed necessary, an Authority should stipulate its requirements in respect of the size of the accommodation, environmental requirements and equipment to be provided.

4.9.5 Protective Clothing

An Authority should confirm the numbers of visitors at any one time Sub-hubCo should allow provision of PPE for.

4.9.6 Working Hours

An Authority should confirm the requirement for Sub-hubCo to operate within the allowed working hours as specified within the planning permission and any additional restrictions set out by the Authority.

4.9.7 [Deliveries]

This chapter should only be considered where Authority Retained Estate may be affected. An Authority should detail specific requirements in relation to limiting delivery times to Site, where relevant. Where there are no restrictions, template drafting may be removed.

4.9.8 Schedule of Condition

An Authority should consider its requirement for a schedule of condition for existing properties/infrastructure/areas of the Site. The Authority should confirm that it is Sub-hubCo obligation to:-

- Include for photographic records within the schedule of condition
- Sub-hubCo is to provide full maintenance for all existing paths and pavings
- Sub-hubCo should ascertain location of services and prevent, maintained and prevent damage.

4.9.9 Any contingency plans that Sub-hubCo must be aware of that may need to be accommodated in the event of emergencies

An Authority should consider any specific issues which may affect Sub-hubCo i.e. fire evacuation policies and muster points for retained live facilities on the Site.

4.9.10 Construction Works outside of the Site

An Authority should consider the obligations of Sub-hubCo for any works outside the Site i.e. notification to relevant authorities, management of the safety of works, costs associated with the works, carrying out works and making good any damaged areas to the satisfaction of others.

4.9.11 Control of Noise and Dust

An Authority should consider its requirement for the management and control of dust and noise over and above Good Industry Practice.

Where an Authority shall have a Retained Estate, an Authority should consider the addition of the following mitigation measures to be carried out by Sub-hubCo for Authority review:

- Monitoring proposals, contingency measures and emergency plans, that include an environmental checklist, to monitor and plan the timing of the Works to avoid disruption to activities within the Authority's Retained Estate which must cover:
 - Daily visual inspections and the recording of required environmental actions (e.g. in relation to noise and air borne debris management);
 - Proposals for planning activities in relation to heavy noise or air borne debris (up to 3 day forecast);
 - Details of how the Works shall be programmed to avoid any adverse impact on any part of the existing site. A timetable of works that takes into account all environmental sensitivities, such as noise, airborne debris and other environmental issues which have been raised by SEPA, SNH or other stakeholders.

An Authority should further consider, with its technical advisors, the requirements to ensure there will be no functions affected by Sub-hubCo's construction plans (vibration & noise etc.) i.e. x-ray facilities in the Retained Estate.

4.9.12 Meetings with Immediate Neighbours

An Authority should consider the requirements for meetings with Neighbours and any structured meeting proposals.

4.9.13 Meetings with the Authority during the Construction of the Works

An Authority should consider the requirements for meetings with Sub-hubCo and any structured meeting proposals.

4.9.14 Restrictions on Images and Videos during Construction of the Works

An Authority should consider the need for Sub-hubCo to gain agreement prior to the use of CCTV cameras, webcams and the like to take images, videos and the like of the Works whether on or outside the Site.

4.9.15 Restrictions and requirements on continuity of existing services. Procedures to be followed for reporting any accidental damage to or loss of services.

An Authority should consider its requirements for notification and making good any damage during the works to maintain continuity of an existing services.

4.9.16 Site boundary and signage treatment requirements

The Authority should outline any requirements for the display of Authority signboard and any restrictions to Sub-hubCo signboard displays i.e. no advertising, prescribed format requirements (NHS standards etc.).

4.9.17 Outside of Site – “Access to Site” signage restrictions

An Authority should consider Sub-hubCo’s requirement to provide adequate route signs erected in positions to display the accepted route by persons or vehicles requiring access to and about the Site. These must clearly delineate vehicles from pedestrians with full details to be agreed with the Authority.

An Authority to confirm the location of all signs out with Sub-hubCo’s Site should be agreed with the Authority prior to installation, and should be to industry standards.

4.9.18 Restrictions on Site accommodation

An Authority should consider its requirements of Sub-hubCo to provide safe and suitable temporary accommodation which includes for temporary connections as is required.

4.9.19 Clean Roads and Footpaths

An Authority should set out Sub-hubCo’s responsibility to suitably maintain roads and pathways to the site and surrounding areas.

4.9.20 Oversailing Activities

The Authority should set out Sub-hubCo responsibility to:

- Take all reasonable steps to ensure that the security of the Site and local area is not compromised by the existence of any crane and that all cranes are kept secure and that all reasonable steps are taken to prevent unauthorised access and/or vandalism to all cranes including removing ladders and other means of access thereto when any crane is not in use;
- Ensure no crane loads shall be suspended above existing buildings; and
- Ensure that at such times as any crane is at the Site but is not in use it is left secure and is parked in accordance with the operating instructions and shall not be parked in a position oversailing buildings unless required for health and safety reasons.

4.9.21 Workmanship, Construction Accuracy & Tolerances

The Authority should set out Sub-hubCo responsibility to:-

- Sub-hubCo shall ensure that general workmanship conforms to current revisions of BS 8000: Series “Workmanship on Building Sites”, which covers typical building construction activities. Where specialist design proposals require construction activities outside the scope of this document, Sub-hubCo shall propose specific quality procedures relating to these activities based on Good Industry Practice current at the time, as a minimum.
- Sub-hubCo shall ensure that workmanship for all construction and component assemblies is to the highest standards in every respect. Work is to be true to detail with sharp profiles, straight and free from defects, marks, waves or flaws of any nature impairing strength, performance or appearance.
- The buildings and the external works shall be designed and set out by Sub-hubCo in accordance with BS 5606:1990 “Guide to Accuracy in Building”, BS EN13670:2009 “Execution of concrete structures” and BS EN 1090:2008 “Execution of steel structures and aluminium structures. Technical requirements for steel structures”.

- In some situations the tolerances identified in BS 5606 may not be appropriate for the particular elements or combination of elements in the Facilities. Where special levels of accuracy are required in relation to Sub-hubCo's proposals these shall be stated by Sub-hubCo. Sub-hubCo shall consider the recommended procedure set out in Figure 8, Section 3, Appendix B, of BS 5606.
- Sub-hubCo shall identify critical dimensions and setting out points on all its drawn information.

4.10 Site Security

An Authority should set out Sub-hubCo's responsibility to secure the site.

4.10.1 Notices

An Authority should set out Sub-hubCo's responsibility to publish all public notices i.e. prohibited public access notices.

4.10.2 Site Security out-with Operational Hours

An Authority should set out Sub-hubCo's responsibility to secure the site out-with Operational hours

4.10.3 Safety of Authority Related Parties and the Public

An Authority should set out Sub-hubCo's responsibility for safety of persons upon the Site.

4.11 Operational Disruption & Continuity of Service

An Authority should set out Sub-hubCo's responsibility to:-

- Ensure that safe and secure access for staff, users, visitors and all persons requiring access to the Facilities and / or Site is maintained at all times.
- Plan and execute the construction of the Facilities such that, at all times, continuity of all of the Authority's operational service is maintained. This applies to completed elements of the Facilities (i.e. whilst other elements of the Facilities remain under construction and / or are being commissioned).
- Ensure that all reasonable safeguards are incorporated to provide continuity of Utilities supplies to the Facilities at all times. Utility supplies include, but are not limited to, gas, electricity, water, sewerage and communications services.

4.11.1 [Continuity of the Retained Estate]

This sub-chapter is only relevant to Sites with a Retained Estate only. An Authority should consider, where applicable, Sub-hubCo's responsibility in maintaining continuity of the Retained Estate activities

4.11.2 Continuity of Existing Services

An Authority should set out Sub-hubCo's responsibility to:-

- Plan and execute the Works to ensure that the operational continuity of the immediate neighbours to the Site is maintained at all times.
- Ensure that all reasonable safeguards are incorporated to ensure continuity of Utilities supplies to the adjacent users of the Site in-so-far as they may be affected

by the Works. Utilities supplies include, but are not limited to, gas, electricity, water, sewerage and communications services

4.11.3 Fire Access

An Authority should set out Sub-hubCo's responsibility to:-

- Ascertain the required access routes for the fire brigade and those routes that are to be kept open and maintained throughout the Project Term including nights and weekends. Work affecting existing fire hydrants and associated mains is to be kept to a minimum, notified in advance to the Fire Authority.
- Clearly demonstrate with design proposals any temporary vehicle and pedestrian management required including any proposals for the temporary re-routing of access roads and footpaths in order to ensure continued operation of the area local to the Site. Sub-hubCo shall define and seek agreement with the Authority.

4.12 Completion Requirements

An Authority should consider the completion requirements of Sub-hubCo including the level of cleanliness the Facilities should be presented to the Authority in (i.e. builders/sparkle/clinical clean).

An Authority should consider reviewing and making reference to Schedule Part 10 (Outline Commissioning Programme) and its relevant appendices, particularly Appendix B (Completion Criteria).

An Authority should further consider, in line with its technical advisors, the adoption of the BSRIA Soft Landings initiative in regard to the Completion Requirements and discuss the implementation with Sub-hubCo if this is going to be pursued.

5 General Construction Requirements

Chapter 5 sets out the general construction requirements for the Facilities, most notably the Architectural and elemental design requirements. In completing chapter 5, an Authority may seek additional guidance from its estates team and/or architectural technical advisors.

5.1 Schedule of Life Expectancies

An Authority should provide a list of relevant building elements and detail expected design/residual lives of each element in line with its requirements and Good Industry Practice. For example, external finishes to be selected for 25 year life expectancy, building services systems life expectancies to be to CIBSE Guide M for each element.

Design lives/residual lives should be reviewed with the Authority's technical advisors and Sub-hubCo for relevance to Service Level Specification performance and lifecycling implications up to and at Handover.

5.2 Infection Prevention & Control

An Authority should consider its infection prevention and control requirements, including the required input/agreement of an Authority Infection Control advisor or similar persons.

5.3 Building Air Tightness

An Authority should set out Sub-hubCo's responsibility for:

- Testing air tightness and any targeted performance requirements
- Conditions upon which the tests should be carried out with reference to relevant guidance (CIBSE TM23)

5.4 Building Envelope

An Authority should consider its requirements for the Building Envelope including:

- Consideration of specific thermal/solar performance requirements
- Any specific cleaning/maintenance performance requirements for the Building Envelope i.e. resilience of the detailing/material selection to undertake such tasks.
- Detailing to mitigate damage/climbing

An Authority should further consider any local Site issues which may affect the building envelope i.e. the need for a building to discourage nesting of birds where they are particular prevalent (for example gulls local to coastal regions).

5.5 Acoustics

An Authority should set out Sub-hubCo's responsibility to deliver a project which aligns to its acoustic requirements, for example any particular rooms/areas requiring specific acoustic performance/confidentiality criteria (atria, consulting rooms). Possibly overlap with chapter 8.4.7 of Sub-Section C.

5.6 Authority Testing and Sampling

This chapter must be reviewed by an Authority and its technical advisors specific to the Facilities needs and economic viability.

5.6.1 Mock Up Rooms

An Authority should consider, with its technical advisors, rooms which they need to see ‘mocked-up’ prior to acceptance. An Authority should consider rooms that are most prevalent within the Facilities, or are of particular importance to an Authority. For example a typical bedroom(s) and en-suite(s) within in-patient acute facilities, or consulting rooms in Primary care facilities.

Consideration should be given by an Authority as to where and when room mock-ups are to be provided. It is suggested these rooms are provided prior to Financial Close such that the Authority can review the constructed rooms prior to finalising costs of the Facilities.

In smaller projects, mock up rooms may be unnecessary whereby samples only may satisfy the Authority’s requirements.

5.6.2 Testing of Samples

Tests must be specific to the needs of an Authority. Typical examples of products to be tested, with associated tests to be carried out, are provided below for Authority consideration. Other Project specific requirements to be added by an Authority as necessary, for example, an Authority may wish to test the ligature-free nature of certain components in Facilities providing mental health services.

Product	Tests to be carried out
<i>Typical Door Furniture and locks (including depressible stops, hinges, self-closing devices and electro-magnetic hold open devices as appropriate)</i>	<i>Robustness / ease of operation</i>
<i>Typical window units</i>	<i>Robustness (inc. weather tightness) / ease of operation (opening)</i>
<i>External glazing</i>	<i>Aesthetics / robustness</i>
<i>Sanitary ware</i>	<i>Robustness security of fittings / suitability for users</i>
<i>Ceilings</i>	<i>Robustness/ acoustic performance</i>
<i>Internal walls / stud partitions system</i>	<i>Robustness / acoustic performance</i>
<i>Ventilation and other grilles</i>	<i>Robustness</i>
<i>Small power and light fittings and controls</i>	<i>Robustness</i>
<i>Signage, floor and wall finishes</i>	<i>Robustness / suitability for location / aesthetics</i>

5.6.3 Build Quality

An Authority should set out Sub-hubCo’s responsibility in the timely provision of samples/mock up rooms, the quality of samples being those to be provided/built as part of the Facilities and making good of proposals once tested.

5.7 Integration with Engineering Services

An Authority should set out its requirements of integration of engineering services with the architecture, for example the concealing of services as far as practicable, services locations being such that maintenance minimises disruption to the Authority and ensuring secure and safe access to services where access is required.

5.8 Wayfinding and Signposting

An Authority should set out its requirements for wayfinding and signposting. In consideration with its technical advisors, an Authority may consider the following in respect to Wayfinding and Signposting requirements for the Facilities:

- Interfacing of wayfinding and signposting with an Authority's Retained Estate and buildings local and adjacent to the Site;
- The need for safe, secure and pleasant journeys (views out, use of artwork etc.)
- Use of signposting to support an identity and aid orientation and wayfinding;
- The need to have door signage which may enable interchange of title information, should room functionality change during the Project Term;
- The need for way finding to meet the needs of different groups of people visiting or making deliveries to the Facilities, including service delivery purposes and contractors;
- The need for particular standards of external signage, including car parking management;
- Provision of wayfinding and signage to be inclusive for all i.e. which address the needs of people with impairment in touch, sight, sound or literacy. Non-specialist language shall be used, including consideration of using iconic and pictorial as alternative methods to written word;
- The Facilities shall incorporate the recommendations of "Effective Wayfinding and Signing Systems - Guidance for Healthcare Facilities" 2nd Edition 2005, NHS Scotland Signage Guidelines, NHS Scotland Identity Guidelines and BS8501:2002. "Graphic symbols and signs – Public information symbols" and have a co-ordinated décor and sign-posting scheme to create a safe and readily-understood client environment;
- Signage to strictly comply with the recommendations of the relevant SHTM's, HTMs, HBNs, Design Guides and the Equality Act, and follow the Royal National Institute of Blind People (RNIB)/ Guide Dogs for the Blind Association (GDBA) Joint Mobility Unit guidelines;
- Need for developing and implementing wayfinding strategies based on the Dementia Design Audit Toolkit;
- Proposals shall be developed which acknowledge the multi-sensory process used in wayfinding;
- Signs to be consistent to the end of the journey, identify functional specialities e.g. 'General Medical Practices' etc to facilitate the separation of different clinical service zones; and
- The incorporation of artwork in wayfinding and signposting to enhance the overall therapeutic environment of the building.

5.9 Internal Areas

An Authority should set out Sub-hubCo's responsibility ensure the internal areas:-

- Sub-hubCo shall ensure that the internal areas of the buildings allow access for the appropriate maintenance / cleaning systems and equipment utilising the hierarchy of control measures included within the Work at Height Regulations 2005 as amended.
- Sub-hubCo shall take full cognisance of the maintenance and cleaning requirements detailed in Sub-Section D and Sub-Section E of Section 3 (Authority's Construction Requirements) of Schedule Part 6 (Construction Matters) and shall provide design solutions accordingly.

5.10 Ceilings, including Heights & Voids

An Authority should consider its requirements for ceilings. Aspects for consideration, for review with technical advisors, may include:

- Stating minimum clear ceiling heights for specialist rooms and areas to accommodate specialist functions/functions
- Co-ordination of services and location of access points/Equipment to be provided on reflected ceiling plans for the agreement of the Authority, particularly in highly serviced/specialised areas
- Using a proprietary suspended plasterboard system in areas demanding specific hygiene criteria, for example treatment rooms; and
- The need for ceiling designs to be 'anti-ligature' where appropriate to the Facilities, for example avoidance of tile and grid ceiling solutions in mental health service settings.

5.11 Floors

An Authority should consider its requirements for Floors. Aspects for consideration, for review with technical advisors, may include particular areas requiring higher imposed loadings and particular vibration control for specific areas based on activities being undertaken and Equipment used.

Floor finishes requirements are further addressed in chapter 5.18.

5.12 Roofs

An Authority should consider its requirements for Roofs. Aspects for consideration, for review with technical advisors, may include penetrations being minimised, edge and eave detailing mitigating the ability for climbing, coverings being easy to maintain and detailing minimising acoustic issues.

5.13 Walls

An Authority should consider its requirements for Walls. Aspects for consideration, for review with technical advisors, may include robustness and acoustic properties of walls, material selections allowing mounting of items in specific areas, flexibility for demounting/raising partitions in specific areas.

Wall finishes requirements are further addressed in chapter 5.18.

5.14 Corridor Widths and Heights

An Authority should consider its requirements for corridor widths and heights. Aspects for consideration, for review with technical advisors, may include:

- The need for a minimum width within particular corridors, and/or the need for a minimum width along the length of particular corridors;
- The need for straight corridors to aid visibility, or the need for angles in corridors to provide interest to long walkways;
- The requirement for the avoidance of sharp corners;
- The requirement for mitigating/removing column protrusion in corridors;
- The need for informal seating in main circulation areas, and/or resting points along the travel length; and
- The need for corridor widths at bedded areas to accommodate ease of bed manoeuvrability.

5.14.1 Handrails

An Authority should consider the need for the provision of handrails to circulation and public areas within the Facilities, for example those Facilities serving the Elderly.

Consideration may be given by an Authority to handrail designs being in accordance with dementia design requirements, including being round in design and be contrasting in colour to surrounding finishes. An Authority should consider requirements of handrails being applied across doors within locations of the Facilities to facilitate people with dementia to continue their transit over a doorway without being inspired to open it.

5.15 Doors and Frames

An Authority should consider the following requirements in respect to doors and frames in the Facilities:

- Minimum door width requirements in specific areas of the Facilities for specialist activities.
- Level access at particular areas/locations;
- Acoustic performance;
- Specific construction requirements for doors in specific areas of the Facilities i.e. differing levels of robustness/security requirements i.e. need for laminated or toughened glass used in doors.

- Access control requirements to the Facilities, including electronic access control suiting requirements. Further consideration required as to master key requirements and an agreed quantity of sub-master suites to facilitate the required security zoning within the Facilities.
- Utilisation of ‘hold-back ’electro-magnetic devices on circulation routes and on fire doors to aid movement.
- Provision of light pressure delay check door closers to self-closing doors.
- Use of draught lobbies to minimise draughts and heat loss at main entrance doors.
- Separation of external doors for deliveries, their size and nature designed to suit the needs of the Facilities.
- Need for safety devices or anti-ligature design requirements in specific areas of the Facilities, such as finger protectors and or sloped door frames.
- Need for door ironmongery design to prevent young children opening doors in any areas in the Facilities

An Authority should consider further the aspects of door design detailed within the following guidance documents:

- SHTM 81 Fire precautions in new healthcare premises; and
- SHTM 58 Internal Doorsets

5.16 Vision Panels

An Authority should detail where vision panels are required in the Facilities, for instance all doors other than those to stores, toilets and changing facilities.

An Authority should consider the needs to obscure vision panels for privacy reasons in particular locations i.e. use of interstitial blind systems. Consideration is required as to who may operate the privacy control and how i.e., staff only, lockable from outside the room.

5.17 Windows

An Authority should consider its requirements for windows in the Facilities.

Particular attention should be made to daylight maximisation to contribute to a quality internal environment and minimise reliance on artificial lighting. It is recognised however an Authority may wish to deviate from these proposals given particular operational requirements in some areas. Where this is the case, an Authority should list such areas where daylight should not be provided or should be minimised.

An Authority should consider the following in respect to window requirements in the Facilities:

- Security rating and anti-vandalism measures required, particularly for specialist areas
- Openability of windows i.e. which areas may/may not have openable windows and to what extent they may open
- How window openings may be controlled i.e. handles and control gear in easy to operate locations / only specific Users may have access/control

- Background ventilation requirements
- Obscuring glass to Toilet areas, Changing Rooms, Shower areas and rooms containing confidential activities
- Acceptance, or not, of UPVC frame solutions
- Need for glazed elements to be accessible for cleaning from the inside
- Designing out glare to permit the use of computers, projectors, legibility of writing on white/smartboards etc. from all parts of specific rooms/areas
- Any reduced-ligature design requirements in relation to window designs, including restrictors, handles, fixings etc.
- Any “anti-pass” requirements to mitigate passing of contraband, such as meshes

5.17.1 Curtain Walling

An Authority should consider the following in respect of curtain walling:

- Curtain walling to be to the same specification as general windows;
- The need for curtain walling to have sloping sills; and
- Specific wall frame fabrication requirements i.e. need for aluminium framing given the size and weight of such construction

5.18 Finishes

5.18.1 General Finishes

An Authority should set out Sub-hubCo’s responsibility in the selection of materials which are suitable and deliver the operational requirements. Reference can be made to project specific requirements and relevant building standards.

5.18.2 Walls / Partitions

An Authority should consider the following requirements in respect to wall finishes in the Facilities:

- Finishes needing to be smooth, durable and easily cleaned
- Need for partitions in particular areas to be non-loadbearing, where feasible, to aid future flexibility in design.
- Levels of performance for particular areas of Facilities. For example, high impact plaster finishes to BS EN 13279-1 in areas of the Facilities which may be subject to improper use/damage
- Acceptability, or not, of papered or tiled walls/partitions within the Facilities

5.18.3 Flooring

An Authority should carefully consider detailing areas in the Facilities require an enhanced floor finish performance, for instance gymnasiums, fitness studios etc. such that Sub-hubCo may specify/design the flooring to suit the particular areas function.

An Authority should consider floor slip resistance requirements and set a “Pendulum Test Value” and a “R surface micro-roughness (microns μm)”. Guidance may be sought on the HSE’s

website - http://www.hse.gov.uk/slips/Step/general/advanced/8E7F777B-3B84-49FE-A3D6-D0324E25A801/HSLCourseTemplate/28531/introduction_28709.htm

In addition, an Authority should consider the following requirement examples for floor finishes:

- Suitability for the use of each area, robust, durable, scuff resistant and easily cleaned;
- Care must be taken in the selection of the appropriate soft floor coverings;
- Where carpets are proposed, Sub-hubCo shall provide impervious backing;
- In any one area Sub-hubCo shall ensure only coverings from the same production batch is used to avoid patchiness and/or colour variation;
- Loose laid barrier matting shall not be permitted;
- Welds down the length of a corridors shall not be permitted;
- Visually contrasting texture flooring surfaces must be utilised, wherever appropriate, as an integral part of the way-finding strategy;
- Zero profiles shall be required at external access points, including access routes to any garden/courtyard areas;
- Joints, where required, between rooms shall be situated on the door centre;
- All joints between sheet floor finishes and between cove skirtings are to be hot seam welded with care taken particularly at doorways (all welded joints and set in coves, no open joints or sit on cove);
- Vinyl finishes must be turned up at skirting level with cove formers which is sealed at the top edge with an approved manufacturers mastic;
- Early cognisance must be taken in the positioning of construction joints in flooring bases to avoid seams in floor finishes in the centre of rooms or circulation areas.

5.18.4 Finishes Quality

An Authority to consider the need for 'Hold points' to check finishes quality, proposal to be discussed with Sub-hubCo during Stage 2 programme development.

5.19 External Materials

An Authority should set out Sub-hubCo's responsibility in the selection of materials which are suitable and deliver the operational requirements. Reference can be made to project specific requirements and relevant building standards.

5.20 Architectural Hardware

An Authority should consider the following sub-chapters relating to Architectural Hardware. Particular focus should be paid to the type and location of electronic door access/security requirements, which may be further detailed in chapter 8 of Sub-Section C.

5.20.1 Ironmongery

An Authority should consider the following in respect of ironmongery within the Facilities:

- Specific design requirements for users, for example colour contrasted, easy grip design for the elderly.
- Specification of reduced ligature type where required.
- Provision of kick plates to protect the base of doors to a minimum height above finished floor level.
- Need for push plates and pull handles on corridor doors.
- Need for anti-vandal type fittings in specific areas.

5.20.2 Locks and Locking

In common with window design, the locking/security strategy for the Facilities shall require close consideration and liaison between Sub-hubCo and the Authority Team.

An Authority should consider the following in respect to locks and locking in the Facilities:

- Which doors in the Facilities require proximity card/electronically activated locking mechanisms (for example, main entrances, corridors, department entrances, secure rooms).
- Which doors in the Facilities require deadlocks (for example Plant rooms);
- Specific requirements of locks to suit function of rooms;
- Which doors require override control of locks (for example bedrooms in secure healthcare Facilities); and
- Level of lock suiting and sub-suiting within the Facilities to each unit and department.

5.20.3 Blinds & Curtains

An Authority should consider the following in respect to blinds and curtains in the Facilities:

- Where blinds and curtains are deemed acceptable, or not;
- Material and finish selections to be considered as part of the interior design strategy proposals;
- Control gear not to conflict with window openings;
- Specific requirements/types of tracks to be used, particularly for anti-ligature type areas;
- Where there is a need for particular blind/curtain control to control glare for PC use; and
- Where there is a need for complete black out in areas, and design of blinds/curtains to suit, in order to allow audio visual presentations and experiments in specific areas of the Facilities

5.21 Sanitary Ware

An Authority should consider the following in respect to sanitaryware within the Facilities:

- Whether sanitaryware may or should incorporate water saving devices i.e. automatic sensor taps, push-button taps, low flush cisterns etc.
- Requirement for Female toilets to be provided with sanitary disposal units.
- Requirement for concealed plumbing and cisterns to be behind an Integrated Plumbing System (IPS) of durable and robust specification. (IPS surfaces readily cleansable and incorporate smooth, rounded edges).
- Requirement for sanitaryware to be robust and vandal resistant with tamper-proof fittings.
- Requirement for splash backs at all handwashing locations.
- Acceptability or not of shower curtains. Where accepted, the need for shower curtains to be mould-resistant and provide privacy for users.
- Vandal resistance requirements, and any particular areas of focus for such requirements.
- Any reduced ligature sanitaryware requirements.
- Requirement for hand gel dispensers and associated ancillary fittings i.e. drip trays.

5.22 Staircases, Ramps, Balustrades, Walkways, Balconies & Lifts

An Authority should consider its requirements in respect of staircases, ramps, balustrades, walkways, balconies & lifts to meet operational requirements. Particular issues relating to accessibility for all and movement of Equipment/people through the Facilities should be explored.

5.23 Protection

An Authority should consider wall protection and heights specific to the needs of the Facilities operations and or Equipment within the Facilities.

5.24 Static Discharges

An Authority should set out Sub-hubCo's responsibility to minimise static charge including:-

- Sub-hubCo shall seek to eliminate, by choice of material coupled with control of the environment the release of static charge.
- All floors within Comms/Hub/Server rooms shall be antistatic. The flooring and pedestals that the antistatic flooring sit upon shall to comply with BS EN 50310:2006.

5.25 Standardisation & Prefabrication

An Authority should consider the use of standardised / prefabricated elements and building components to achieve good quality control, ease and speed of installation and flexibility for

future use is welcomed. Their use shall not constrict the Authority from achieving Operational Functionality and offering value for money.

5.26 Materials

An Authority should set out Sub-hubCo's responsibility in the selection of materials which are suitable and deliver the operational requirements. Reference can be made to project specific requirements and relevant building standards. Specific material selection restrictions should be identified.

5.27 Sustainability

An Authority should consider specific sustainability requirements relating to the Project, Local Authority requirements and/or additional stakeholder requirements. Issues for consideration may include requirements to maximise biodiversity and minimise waste and dependence on polluting fuels.

An Authority should consider, with its estates team and technical advisors, the following 'NHS Requirements' in respect to Sustainability:

- The development of a Local Environmental Strategy in line with sustainable development in NHS;
- New environmental strategy for the National Health Service;
- Using Corporate Greencode, implement an Environmental Management System (EMS) for accreditation with ISO 14001;
- Good Corporate Citizenship Assessment Model (GCCAM);
- Carbon/ energy management in healthcare; and
- Consultation with SHINE: Alliance for sustainable buildings.

5.27.1 BREEAM

An Authority should consider, with its technical advisors and Health Facilities Scotland (HFS), the BREEAM requirements, including an overall rating, for the Facilities based on project specific requirements (including funding scheme requirements) and Planning Permissions.

5.28 Energy Strategy

An Authority should consider, with its technical advisors, the following requirements of Sub-hubCo in respect to the Energy Strategy for the Facilities:

- Minimise direct solar gain to avoid air conditioning/comfort cooling;
- Maximise daylight factors;
- Appropriately specify Plant and services to maximise utilisation and efficiency;
- Appropriately specify energy efficient equipment and fittings;
- As far as practicable, plan buildings such that natural draught free ventilation can take place in a controlled manner, therefore obviating or reducing the need for mechanical ventilation;

- Optimise the orientation of each space to suit its function while considering the impact on the internal environment, in particular maximum/ minimum room temperatures and glare;
- Provide high levels of metering and sub-metering of Utilities and energy consumption, in line with Good Industry Practice and to enable billing of 3rd parties / departments / users as appropriate to Authority operation;
- Provide high levels of appropriately designed building fabric insulation to reduce heat losses and hence reduce required heating requirements;
- Provide controls for heating, ventilation and lighting for convenient, effective, flexible and efficient control by the building manager;
- Zone the building and its services to enable extensive and flexible controls to reflect the likely multi-user demand for opening sections of the Facilities to suit specific needs, while shutting down unoccupied areas;
- Ensure construction joints are designed and constructed to minimise infiltration to the building with reference made to the guidance specified in the BRE Trust document entitled 'Airtightness in Commercial and Public Buildings';
- Incorporate efficient control, re-use and disposal of rain and wastewater;
- Give due consideration to renewable energy sources and low carbon technology within their design proposals; and
- Utilise environmental simulation software (IES, TAS etc.) to inform design process.

5.29 Fire Planning Strategy

An Authority should consider, with its technical advisors, insurance requirements and implications (sprinklers etc.) for fire planning, including relevant Loss Prevention Standard compliance requirements.

5.30 Storage of Gas Cylinders

An Authority should set out Sub-hubCo's responsibility to:-

- Sub-hubCo shall ensure that all gas cylinders, whether they are connected to external supplies or not, are stored in accordance with Building Standards.
- Signage must be sited and designed in accordance with the Health and Safety (Safety Signs and Signals) Regulations 1996, BS 5499-10:2006 Safety signs, including fire safety signs - Part 10: Code of practice for the use of safety signs, including fire safety signs and the Health and Safety at Work Act 1974.

5.31 [Radiation Protection]

This chapter is only relevant to Facilities where exposure to ionising radiation might occur.

Where relevant, an Authority should consider relevant technical and Facilities requirements relating to radiation protection such as involvement of a Radiation Protection Adviser.

5.32 [Static Magnetic Field Protection]

This heading is only relevant to Facilities where exposure to where magnetic resonance imaging might occur.

Where relevant, an Authority should consider relevant technical and Facilities requirements relating to Static Magnetic Field Protection such as screening unwanted radio signals from MRI equipment interfering with equipment elsewhere in the Facilities and specific architectural, environmental and material requirements for such activities.

5.33 [Electromagnetic Interference Protection]

This heading is only relevant to Facilities where exposure to where Electroencephalography (EEG) and Evoked Potential Recordings might occur.

Where relevant, an Authority should consider relevant technical and Facilities requirements relating to Electromagnetic Interference Protection such as screening unwanted radio signals from MRI equipment interfering with equipment elsewhere in the Facilities and specific architectural, environmental and material requirements for such activities.

5.34 Facilities Maintenance

An Authority should set out Sub-hubCo's responsibility to:-

- Providing Facilities that ensure that the maintenance and replacement of services, finishes, components, elements, systems, furniture and equipment can be carried out effectively within the requirements of service operations and functionality.
- Provide fixtures and fittings for fire extinguishers.
- Ensure that the access routes within the buildings shall allow access for the appropriate maintenance / cleaning system and equipment utilising the hierarchy of control measures included within the Work at Height Regulations 2005 as amended.
- Ensure that the access routes within the buildings for maintenance / cleaning systems and equipment shall not affect Operational Functionality of educational areas.
- The structural frame, floors and internal walls of the buildings shall be designed by Sub-hubCo to accommodate the loading requirements of access equipment and operatives, where the cleaning and maintenance system uses this method.

5.35 Pest Control

The Authority should set out Sub-hubCos responsibility to incorporate pest control design measures to prevent pest entry to the Facilities.

6 Civil & Structural Engineering Requirements

This chapter 6 sets out the civil & structural engineering requirements for the project. In completing chapter 6, an Authority may seek additional guidance from its estates team and/or Civil and Structural engineering technical advisors.

6.1 General Requirements

An Authority should set out Sub-hubCo's responsibility to ensure the civil and structural engineering design:-

- Be co-ordinated with the design of the building fabric, finishes, services, facades, internal walls and medical equipment, including buildings / structures;
- Include the design and construction of any secondary framing necessary for the support of plant, services, or lifting equipment;
- Provide adequate space for the distribution of services, while maintaining the required finished floor levels and the floor to ceiling heights called for in the Room Data Sheets, and elsewhere in this Sub-Section C of Section 3 (Authority's Construction Requirements) of Schedule Part 6 (Construction Matters);
- Provide a clear zone above the ceilings for services to the degree consistent with overall economy for the Authority;
- Provide fire resistance required by the appropriate Building Regulations;
- Be economically adaptable to meet identified changing operational needs;
- Be designed to accommodate maintenance requirements for services, equipment and building fabric; and
- Structural design shall ensure that structures are co-ordinated with the building services distribution philosophy in order to ensure the logical and sequential installation and maintenance of services. For example the use of columns adjacent to vertical service voids shall be minimised.

6.2 Architectural / Structural Interface

An Authority should consider specific Architectural and Civil and Structural engineering interface requirements including:

- Provision of penetrable zones co-ordinated with the framework for partitions and services
- Location and co-ordination of columns in the general arrangement
- Any flexibility/adaptability/expansion detailed in chapter 3.7.
- Flexibility of use of spaces, and the need to make changes over the life of the Facilities.
- Where movement of internal walls is identified as a potential future requirement, an Authority should obligate Sub-hubCo to demonstrate how internal wall to external perimeter wall junctions shall be dealt with in the event of a change to the wall locations in the future.

6.3 Performance Standards

An Authority should cross refer to the requirements outlined within in chapter 2 of this Sub-Section C.

6.4 Loadings & Structural Flexibility

An Authority should consider the loading and structural flexibility requirements of the Facilities, including any requirements to reflect the adaptability and expansion requirements of the Facilities, and requirement for the Facility to be free standing from any other building.

An Authority should consider detailing areas of potential dynamic activity that Sub-hubCo may need to consider adverse harmonic affects and address in their design accordingly. An Authority should set vibration requirements relating to activity and Equipment use.

An Authority should also confirm where lists of Equipment, and specifications/weights where known, will be i.e. RDS or Schedule Part 11 (Equipment).

An Authority should further consider, with its technical advisors, the requirements for the structure to accommodate any ceiling tracking hoist systems, including the requirement for re-configuration, extension and / or retro-fitting of lifting equipment i.e. the whole of the specified area to be structurally capable of accommodating the hoist equipment.

6.5 Foundations & Sub-structure

An Authority should consider its requirements and Sub-hubCo's responsibility for foundations and sub-structure including the need to ensure settlement and differential settlement is limited to ensure no visible distress to the structure or Facilities.

An Authority should consider what existing Site information/surveys/drawings are available, if any, for use by Sub-hubCo as historic information of the Site only. An Authority should further confirm where this information may be found i.e. a data room.

6.6 Earthworks

An Authority should consider its requirements and Sub-hubCo's responsibility for earthworks to ensure that the Site is appropriate for use and free from unsuitable arisings. An Authority should consider where any excavated material may be best re-used on Site, for example in landscaping designs.

6.7 Movement Joints

An Authority should consider where movement joints are not acceptable. Examples below:

- Kitchens and food preparation areas;
- Bedrooms;
- Pharmacies;
- Any room with (now or in the future) with ceiling mounted tracking hoists or other similar lifting equipment;
- X-ray and imaging rooms;
- Any other room requiring a sterile environment; and
- Any rooms where there is a risk of biological or other hazard, or risk of penetration by water, grease / oil, or other hazardous or detrimental substance.

6.8 Building Super-Structure & Envelope

An Authority should consider and outline Sub-hubCo's responsibility to ensure demonstrate that:-

- Suitable materials are used
- Natural frequency shall be such that vibrations shall not be detrimental to occupants.
- Ability to withstand loads and load combinations imposed on the building, vertical, horizontal, dynamic, temporary etc.;
- Designs must demonstrate compliance with robustness (tieing) requirements of current Codes of Practice and Technical Standards (Scotland) i.e. progressive collapse requirements;
- Provision of movement must be included in designs, horizontal, vertical, shrinkage, temperature effects etc.;
- Vibration sensitive equipment shall be in use throughout the Facilities. Designs must take cognisance of vibration categories;
- Integration of building services with structure shall be a highly important part of the design process. Sub-hubCo shall demonstrate how design coordination shall be achieved;
- All material used in the design of structures shall be compatible with each other and such things as finishes (e.g. Painted); and
- Where any part of the structure is exposed internally, it shall be accessible for cleaning.

6.9 Fire & Corrosion Protection

An Authority should set out Sub-hubCo's responsibility to:-

- Provide fire protection to all elements of structure and ensure fire ratings are in compliance with space use Building Regulations requirements.
- Ensure all civil and structural elements shall have a fire resistance in accordance with Regulation 2 of the Building (Scotland) Regulations Technical Handbook.
- Ensure any externally applied fire protection must be durable and in accordance with the design life of the members in question.

6.10 Durability & Maintainability

An Authority should set out Sub-hubCo's responsibility to deliver a project which is capable of withstanding potential deterioration due to weather, ground conditions, wear and tear and accidental damage.

6.11 Drainage

An Authority should consider its requirements and Sub-hubCo's responsibility for drainage services, which may include:

- Liaison with SEPA, Scottish Water and other recognised authorities
- Setting specific flood risk design criteria
- Providing Sustainable Urban Drainage (SUD) designs
- Mitigating internal drainage manholes
- And Site specific requirements such as:
 - The need to lock manhole covers within particular areas for security purpose.
 - Any specific specialist waste materials (chemicals etc.) and associated drainage requirement.

7 External Works

This chapter 7 sets out the external (including landscaping) requirements for the project. In completing chapter 7, an Authority may seek additional guidance from its estates team, security team and/or Architectural technical advisors.

As an introduction to External Works, an Authority should list its requirements in respect of what the overall landscaping strategy should deliver. The following proposals are examples for consideration:

- To provide an environment with seasonal interest and attractive usable spaces for all users;
- To take cognisance of the existing landscape and built designations and protect and augment them in a unified landscape design;
- To create an attractive and diverse hard and soft landscape treatment that reflects the status of the Facilities, complements the architecture of the buildings and strengthens the existing landscape character; and
- To provide a hierarchy of public and private spaces with appropriate landscape treatment.

An Authority should further consider the following in respect to general external works for the Facilities:

- The effect the external works must have on the Facilities, for example providing therapeutic and secure designs for mental health Facilities;
- Any requirements for biodiversity or nature conservation requirements, or any woodland considerations;
- Any integration with any Retained Estate or local buildings/environments; and
- Detailing any external areas within the Site that shall not be landscaped as part of the works

7.1 Security

An Authority should set out Sub-hubCo's responsibility to deliver proposals which consider external security aspects and issues such as liaison with Local Authority Crime Prevention Officers, providing securely fitted external equipment, mitigating opportunities to scale fences and adopting 'Secured by Design' principles

7.2 Soft Landscaping Requirements

An Authority should consider the following in respect of the principles of the soft landscaping scheme:

- The landscape proposal must aim to provide a vibrant and colourful environment that is reflected through the seasons;

- Plants species specified must be environmentally suitable for the local growing conditions including climate and soils;
- Planting areas must encourage natural growth and maximise the potential for using natural planting features to assist natural drainage;
- Specified plants and materials shall be non-poisonous and non-injurious (e.g. berries, spikes and the like) in public accessible areas;
- Shrub beds, trees and planting areas shall be designed with minimal future maintenance requirements wherever possible;
- The construction, materials and plant selections must be environmentally appropriate;
- Drainage shall be designed to allow safe use of all grounds at all times;
- Shrubbery and planters must be designed to be far enough away from windows to allow access for tower/mobile platforms/ladders etc to carry out routine maintenance to the roof edges, guttering and wall elevations etc.
- Designs shall accommodate the requirements of BREEAM and the recommendations of the appointed ecologist to improve the ecological value of the Site through introduction of native species;
- Imaginative soft landscaping proposals for entrances shall be provided beyond the minimum requirements of the local planning authority; and
- All in-patient soft landscapes which may be accessible by lone patients shall have anti-ligature provision.

7.2.1 General

An Authority should consider Sub-hubCo's responsibility to:-

- Involve the Authority in the decision making process for all proposed planting for the Facilities
- By reference to their own ground investigation data; confirm the need for imported topsoil or whether amelioration of existing soil is sufficient to support their soft landscaping proposals. Sub-hubCo shall then provide new or utilise existing soils, as appropriate.
- Carry out any necessary remedial measures to suit planted areas and hard landscaped areas.

7.2.2 Planting Areas

An Authority should consider Sub-hubCo's responsibility to ensure:-

- Planting plans, together with planting schedules, shall be provided and sufficiently detailed to determine the proposed plant selection, including information on size, species and density. The positive contribution that native species and planting makes to the biodiversity/ wildlife potential of the site must be fully exploited.
- Planting shall incorporate species that provide a range of sensory experiences and a variety of form and colour throughout the year. All plants shall conform to the relevant British Standards. All plants shall be true to form, type, size, healthy, vigorous, pest and weed free. Any failures resulting from inappropriate

specification of plant material shall be replaced at Sub-hubCo's own expense. Sub-hubCo shall be responsible for the replacement, to the agreed specification, of any plant failures, until such times as all planting has been fully established.

- Planting (including associated soft landscaping beds) must also be incorporated within hard landscaped areas, particularly adjacent the main Facilities entrance, to provide an attractive and welcoming feature.

7.2.3 Soil Preparation & Topsoil

An Authority should consider Sub-hubCo's responsibility to ensure:-

- Soil preparation shall be carried out by Sub-hubCo in accordance with BS 4428:1989, Code of practice for general landscape operations (excluding hard surfaces). The sub-soil formation shall be thoroughly ripped prior to spreading the topsoil layer. Sub-hubCo shall ensure care is taken with the use of weed-killers. Sub-hubCo shall ensure that all topsoil complies with BS 3882:2007, Specification for topsoil and requirements for use.

7.2.4 Trees

An Authority should consider Sub-hubCo's responsibility to:-

- Ensure that any work to existing trees, whether or not covered by Tree Preservation Orders (TPO), shall only be undertaken with the appropriate licence as stipulated by the TPO or with the approval of the Authority.
- Ensure that tree protection complies with BS 5837:2012 – 'Trees in relation to design, demolition and construction – Recommendations'. A register of the existing trees shall be made including giving each a tree a unique number. Before construction commences Sub-hubCo shall take photographic records of the existing trees on and adjacent to the Site. The photographs shall record the trees' unique number. A Site plan shall record the position of the existing trees noting their unique number.

7.2.5 Shrubs & Groundcover

An Authority should consider Sub-hubCo's responsibility to ensure:-Ensure that all shrubs shall comply with BS 3936 Part 1:1992, and shall be planted to BS 4043: 1989.

- Ensure that shrub and groundcover protection complies with BS 5837:2012 – 'Trees in relation to design, demolition and construction – Recommendations'. A register of the existing shrubs and groundcover shall be made including giving each a shrub and area of groundcover a unique number. Before construction commences Sub-hubCo shall take photographic records of the existing shrubs and areas of groundcover on and adjacent to the Site. The photographs shall record the shrubs and areas of groundcover's unique number. A Site plan shall record the position of the existing shrubs and areas of groundcover noting their unique number.

7.2.6 Planting & Watering

An Authority should consider Sub-hubCo's responsibility to ensure that planting and watering is carried out while soil and weather conditions are suitable for relevant operations.

7.2.7 Turf

An Authority should consider Sub-hubCo's responsibility to:-

- Ensure that turf is in accordance with BS 3969:1998 + A1:2013 – 'Recommendations for Turf for general purposes'. Turf shall be free from undesirable grasses and weeds.
- Avoid grass in any proposed courtyards, unless the courtyard is very large. If provided Sub-hubCo must ensure there is a suitable, sufficiently wide access away from occupied areas for bringing mowing machinery to the turfed areas.

7.2.8 Health & Safety Considerations

An Authority should consider Sub-hubCo's responsibility to:-

- Ensure that all weed-killer / pesticides and herbicides and any other chemicals used in association with the landscape works preparation comply with SEPA regulations, the COSHH Regulations, and any other relevant regulations.

7.3 Hard Landscaping Requirements

An Authority should consider the following examples requirements for the Hard Landscaping scheme:

- Provision of access for hardstanding for emergency and delivery vehicles;
- Provision of access for building maintenance and window cleaning;
- Provision of access and circulation for users both on foot, bicycles, in cars or on public transport;
- Provision of parking for vehicles and bicycles including disabled facilities;
- Provision of drop-off facilities [including lay-bys and bus/transport stops];
- Provision of accommodation for building services plant, waste and materials management, as appropriate;
- Protect against noise and environmental pollution;
- Provision of security measures, such as CCTV and external lighting, as appropriate;
- Provision of appropriate Site boundary treatment;
- Provision of walls, fencing, gates / barriers and hedgerows as appropriate along the Site Boundary and at particular locations inside the Site;
- Provision of suitable means of shelter against adverse weather conditions at entrances, [bus / transport waiting], and drop off locations and covered links provided, as appropriate;
- Provision of vehicle access barriers, as appropriate;
- Inclusion of fire hydrants and waste receptacles in appropriate locations.
- Use a variety of materials to provide an assortment of tactile experiences and transitions from one type of activity to another;
- Use, where possible, locally derived materials; and
- Introduce colour and interest.

An Authority should further consider the following specific examples for the Facilities in respect to Hard Landscaping requirements:

- Inclusion of any external dining areas;
- Provision of external shelter features;
- Any 'overspill' parking requirements ;and
- Any smoking area requirements.

7.3.1 Fire Assembly Area

An Authority should set out Sub-hubCo's responsibility to include for suitable fire muster points with all associated signage.

7.4 Private Open Space Courtyards / Therapy Gardens

An Authority should consider its requirements in respect of internal courtyards/gardens etc.

Where identified as required, an Authority should consider the following requirements in respect of private open space courtyards/therapy gardens:

- Maximise therapeutic opportunities and the ability to relieve boredom;
- Accessible by all;
- Provide opportunities for exercise and leisure;
- Be sensitive to the needs of physically disabled patients, visitors and staff;
- Consider space and environment and recognise that this shall be important from both the external and internal perspective;
- Be appropriate to the client group(s) accessing each area, e.g. anti- ligature issues with Mental Health clients, and the avoidance of open water;
- Provide wander routes and avoid dead ends;
- Provide contrasting ground finishes (materials, colours and textures) to provide multi-sensory interest and as required for different patient groups (i.e. dementia care);
- Provision of sheltered areas either as canopies or accessible by covered walkways for external access in inclement weather;
- Provision of suntraps and comfortable seating; and
- Provision of water supplies for irrigation purposes, provided within secure housing, complete with suitable backflow prevention devices.

7.5 External Facilities

An Authority should consider the following and their design implications in respect to External Facilities for the Facilities:

- Store/ enclosures for Facilities use, bins, Estates/janitorial staff;
- Community stores;

- Energy fuel storage where appropriate i.e. biomass where specific; and
- Dedicated storage for grounds maintenance equipment.

7.6 External Equipment and Furniture

An Authority should set out Sub-hubCo's responsibility to:-

- Allow for securely fixing all equipment and furniture and must not promote access to roofs, fences etc.
- All Site furniture must be visually pleasing and co-ordinated, robust, safe, easily maintained and securely fixed to the ground;
- Planters may be incorporated, and shall require drainage and irrigation provisions;
- Grit and salt stations/bins shall be provided and located outwith public areas;
- Permanent fencing shall be incorporated to assist in security of the Site. Fences shall be secure and robust in construction and of pleasing design. Height shall vary according to functional requirement. Sub-hubCo must assess security risks associated with the Site during the design stages and submit proposals; and
- Adequate, safe, secure, visually supervised parking provision for cycles must be provided at appropriate locations.

7.7 Site Boundary Requirements

An Authority should consider the following in respect of Site Boundary Requirements:

- Specific fencing requirements for the Facilities, including associated hard landscaped areas such as synthetic sports pitches
- Pedestrian and vehicular access gate requirements and any security measures therein

7.8 Site Access & Circulation

An Authority should set out Sub-hubCo's responsibility to ensure:-

- Facilities have clearly defined and signed entrance
- Suitable designed road access
- Separation of traffic (blue light emergency access etc.)
- Define routes for construction traffic during construction
- Consider "safer routes to school" guidance

7.8.1 Vehicular Access

An Authority should set out Sub-hubCo's responsibility to ensure:-

- All vehicles entering the Site must have suitable turning facilities provided to allow them to exit the site in forward gear.
- Road widths, turning circles, waiting bays and lay-bys shall be designed so that they are suitable for the Facilities and emergency traffic including service vehicles and are designed for the convenience of staff and the public. It shall be noted that some of these routes may be required to connect seamlessly into and be compatible with roads, turning circles, bays and lay-bys which are outside the Site boundary.
- Vehicular access shall further be designed in a manner to minimise unauthorised parking.

7.8.2 Emergency Vehicle Access

An Authority should consider specific requirements in relation to Authority emergency vehicles using the Site, including the provision of Ambulance bays etc.

7.8.3 Service Vehicle Access

An Authority should provide a list of anticipated service vehicle types and associated frequency to Site to inform Sub-hubCo design proposals.

7.8.4 Pedestrian Access

An Authority should consider the pedestrian access requirements for the Facilities. This may include:

- Footpaths with specific links to hard and soft landscaped areas
- Segregation of pedestrian and cycle ways from vehicular routes
- Suitable lighting to all pedestrian access ways
- Appropriate measures are put in place for emergency only access/egress points such that they are not used in every day operation
- The needs for the provision of "rest areas" and provision of handrails along the main pedestrian routes for those who may have difficulty walking.

7.9 Roads, Footpaths, Cycleways and Car Parking

An Authority should consider the needs of all vehicular traffic on to Site including any specific requirements of locations, types, finishes of roads, footpaths, cycleways and car parking.

An Authority should further consider any requirement for fleet vehicle garaging.

7.9.1 Road Markings & Signage

An Authority should set out Sub-hubCo's responsibility to ensure:-

- The design provides appropriate signage (including car park management signage), external to the Facilities associated with the Works to ensure ease of navigation around the Site.
- Sub-hubCo undertake all necessary road markings within the Site boundary.

7.9.2 Cycleways and Cycle Storage

An Authority should consider the requirement for cycleways and cycle storage specific to the Facilities and Site.

Where identified as required, an Authority should consider the following in addition to the template drafting and in relation to Cycleways and Cycle Storage for the Facilities:

- Cycle storage facilities to be fully covered to protect cycles from adverse weather conditions, and to detail coverage of lighting and CCTV for security purposes; and
- Showering facility requirements.

7.9.3 Car [and Motor Bike] Parking

An Authority should consider listing the amount of car and motor bike parking (including accessible, parent and child and other non-standard spaces) required for the Facilities, in line with Planning Permissions.

An Authority should consider any specific parking requirements such as locations in respect of Facilities entrance points and minimum space sizes over and above normal planning conditions.

An Authority should consider any specific requirement for electric vehicles and their associated charging and parking requirements.

7.9.4 Disabled / Accessible Parking

An Authority should set out Sub-hubCo's responsibility to ensure:-

- The design of the Facilities shall recognise the importance of providing suitable accessible parking spaces and drop-off points as close to the entrances as possible.
- Each disabled / accessible parking space shall be provided with signage to meet the standards out lined in the Traffic Signs Regulations and General Directions 2002 for disabled / accessible spaces.
- Accessible parking bays shall incorporate a minimum additional 1.2m section to the end of each bay with level access. This is to allow tailgate access by disabled people without the need to set down ramps or lifts within the main circulation routes of car parks. The first and last accessible parking bays in a row of 'in line' spaces shall be provided with a minimum clear area of 1.2m to both sides.

An Authority should consider HFN 21 (Car Parking) in determining the number of Disabled / Accessible car parking spaces.

7.9.5 Drop-off / Pick-up Arrangements / [Public Transport Access and Stops]

An Authority should consider the needs for the following in respect of Drop Off / Pick Up and Public Transport Access and Stops for the Facilities:

- The need for bus stops within or local to the Facilities and respective design considerations (mitigate bus reversing etc.);
- Separation of specific vehicular access to the Site i.e. buses;
- 'Passive' enforcement of protected access routes i.e. rising bollards; and
- Involvement of the Local Council's Public Transport Team or similar relevant body

8 Mechanical & Electrical Engineering Requirements

This chapter 8 sets out the mechanical and electrical engineering requirements for the project. In completing chapter 8, an Authority may seek additional guidance from its estates team, security team and/or mechanical and electrical engineering technical advisors.

8.1 Minimum Engineering Standards

An Authority should set out Sub-hubCo's responsibility to ensure:-

- Unless otherwise agreed with the Authority, Sub-hubCo shall ensure that all building services elements are designed in accordance with current revisions of the standards detailed in chapter 2 of Sub-Section C.
- The design of the environmental control system shall be co-ordinated and integrated with the design of the structure and the occupied areas as to maximise the control and flexibility of the Facilities.

8.2 Energy Centres and Plant Areas

An Authority should consider its requirements for separation of Plant areas and/or Energy Centres away from the Facilities due to clinical or operational requirements.

An Authority should further consider identifying area proposals for Mechanical and Electrical engineering plant spaces and workshops in the Schedule of Accommodation and to make reference to such within this sub-chapter.

8.3 Infection Control and Safety

An Authority should consider the needs of infection control and ligature resistance services requirements and include any such considerations within Sub-Sections D and E of the ACRs.

8.4 Engineering Services Interface with Building Fabric

An Authority should set out Sub-hubCo's responsibility to ensure that co-ordination of the electrical, mechanical and communication services which shall form an inherent part of the Facilities design. The building services shall be carefully selected and positioned to achieve physical integration with the architectural design solution, and shall not be considered in isolation. Specific matters which may be addressed by Sub-hubCo are as follows:

- All services plant, including water storage tanks, must be readily accessible to allow for regular inspection, maintenance and longer term replacement;
- Access arrangements to all such plant must be safe, convenient and fully comply with the requirements of the CDM regulations, together with all relevant health and safety legislation and guidance;
- Areas such as boiler rooms, ventilation plant rooms and electrical switchgear rooms must be located in strategic and appropriate positions for convenient and efficient services distribution;
- Exposed services shall be acceptable, but only where designed in a co-ordinated way with the architectural design solution, and where agreed with the Authority;

- Exposed pipework, ducting, conduit and trunking are not appropriate in areas where high standards of cleanliness are required, for example, kitchen areas and toilets; and
- Building services installations generally, while being tamperproof by unauthorised personnel, must also be readily accessible to allow for regular inspection, maintenance and longer term replacement.

8.5 [Unrestricted Access to Patients]

An Authority should consider the requirement for unrestricted access to patients, for example in highly serviced acute wards, the need for service locations to not impede patient access.

8.6 Performance Standards

8.6.1 Energy Performance

An Authority should consider and detail, with its technical advisors and estates team, the energy performance requirements for the Facilities.

Compliance of the energy target shall require to be proved by Sub-hubCo prior to Handover of the Facilities via energy modelling, using approved software, as constructed building fabric and building services specifications and following on site commissioning tests to prove proposed performance values have been met. It should therefore be noted that this is an ‘as constructed’ energy targeted, and does not relate to operational energy targets of the Authority which Sub-hubCo do not have full control of (as set by SHTM 07-02).

An example target would be achieving an ‘Excellent’ level of performance for BREEAM Credit ENE 01 Reducing CO₂ Emissions or a specific Energy Performance Certificate (EPC) rating of 1/B+/B. Both targets set a benchmark improvement over a comparative ‘target’ building design.

Where an Authority sets an energy target using Building Regulations modelling outputs (i.e. BREEAM Credit ENE 01 or an EPC) – the following drafting should also be considered to provide the Authority with a more ‘bespoke’ energy model:

A Project specific dynamic energy model shall further be provided by Sub-hubCo for information which shall inform the Authority of the likely energy consumption, and associated Utilities cost forecasting, of the Facilities.

The Project specific dynamic energy model shall use all building properties and plant and services proposals as per Sub-hubCo’s Proposals and the Building Regulations modelling, furthering the input to make it bespoke to the Facilities (i.e. minimising reliance on National Calculation Methodology template operating assumptions). The basis of calculations underpinning the energy figures, and any assumptions, must be reported by Sub-hubCo, including but not limited to example:

- Degree days/CIBSE Weather profiles used;
- Number of weeks in use per annum;
- Hours of use per day;
- Number of users assumed;

- *Energy consumption attributed to Equipment; and*
- *Any other assumptions.*

All the above assumptions shall be agreed in writing with the Authority prior to informing the dynamic energy model.

(i) Renewable Technologies

An Authority, with its technical advisors and/or estates team, to consider minimum renewable and low to zero carbon technology requirements for the project in line with local area agendas and Authority policies. Where specific requirements are known, these should be detailed within this chapter i.e. 10% of energy consumption on site to be met by Low to Zero Carbon Technologies.

(ii) Energy Strategy

An Authority should consider, with its technical advisors, the requirement for an agreed energy strategy based on the likely number of heat and power sources and back up facilities, i.e. if biomass CHP plant is proposed, with back up gas boilers, the CHP plant should be agreed as the 'lead' heat and power source for the Facilities.

The Authority should also consider the SFT guidance in regards to drafting in relation to the energy strategy for the building. This can be found at <http://www.scottishfuturestrust.org.uk/publications/energy-strategy-guidance-note-for-hub-dbfm-projects>

8.6.2 External Design Conditions

An Authority should consider which external design conditions should be used in the design analysis for the Facilities. Examples include the CIBSE Test Reference Year (TRY) and CIBSE Design Summer Year (DSY) for a number of cities throughout Scotland. An Authority may also consider the need for the Facilities to accommodate potential increases in temperatures i.e. through use of the CIBSE Future Climate Files in thermal modelling exercises.

8.6.3 Internal Design Conditions

An Authority should consider the internal design conditions of each space for both internal comfort and Payment Mechanism / Service Level Specification performance criteria. This information should be reviewed with suitable Estates colleagues and technical advisors.

The environmental data should be captured within the environmental criteria section of Room Data Sheets (RDS) in Section 6 of Schedule Part 6, completed and agreed between the Authority and Sub-hubCo. Where RDS do not include environmental criteria, an Authority may wish to use an Environmental Matrix to set out internal design conditions. A draft example template of an Environmental Matrix is included in the appendices of this guidance document.

An Authority should consider CIBSE guides and SHTM guidance when reviewing internal design conditions.

8.6.4 Thermal Comfort

The environmental data within the RDS/Environmental Matrix requires to be completed and/or agreed by the Authority. As part of this, an Authority should agree and detail, with its technical advisors, the thermal comfort parameters for the Facilities based on Project specific requirements.

Where cooling is known to be required in particular areas of the Facilities by an Authority, this, and associated design requirements, should be agreed with its technical advisors and stated in this sub-chapter.

In setting thermal comfort requirements, an Authority should consider wider impacts on HVAC system selection to meet such needs, and energy consumption therein.

SHTM 03-01 provides guidance temperature ranges within its Appendix 1: Table A1 which an Authority should review and confirm acceptance, or not, with. Consideration should also be given to permissible time periods over a given threshold temperature to allow for extremes in external temperature for naturally ventilated spaces – for example allowing exceedance of 28°C (dry bulb) for 1% of annual occupied hours in office spaces (CIBSE Guide A Table 1.8). Temperature ranges and thresholds should take due cognisance of the specific requirements and operation of each space.

An Authority should state the ways in which Sub-hubCo should present thermal modelling overheating analysis for Authority review and agreement, for instance approved software modelling in line with CIBSE Application manual AM11 and the recommendations detailed in CIBSE Technical Memorandum 52: The Limits of Thermal Comfort: Avoiding Overheating in European Buildings.

8.6.5 Air Quality

(i) Internal

An Authority should consider, with its technical advisors, those areas where natural ventilation is not preferred. Such locations may include where:

- The level of outside noise is unacceptable;
- Safety or security features which affect the natural ventilation design must be provided;
- Unpleasant smells are generated either inside or outside the building;
- Where inflows of air are undesirable;
- Where through environmental calculation/simulation it is shown that natural ventilation alone shall not meet the minimum air flow compliance of limit the internal summer time temperatures to those specified in the RDS; and
- Areas which are comfort cooled.
-

8.6.6 Vibration

An Authority should set out Sub-hubCo's responsibility to ensure that building services plant and equipment are suitably isolated from the building structure in order to prevent the transmission of vibration. Sub-hubCo shall comply with the guidance on the satisfactory magnitude of building vibration with respect to human response given in BS 6472-1:2008 Guide to evaluation of human exposure to vibration in buildings Part 1 Vibration sources other than blasting.

8.6.7 Acoustics

An Authority should consider particular acoustic requirements which will influence Sub-hubCo's design, examples include:

- Appropriate selection of passive ventilation systems which allow for effective operation and control but do not result in noise nuisance;
- Careful selection of plant and equipment;
- Good installation;
- Appropriate design of mechanical services pipework and ductwork with regard to flowrates and velocity;
- Appropriate design of mechanical and electrical noise emitting terminal devices such as lights, grilles, diffusers, radiators, etc. The design of which should not result in noise nuisance;
- Installation of flexible connections and isolation pads where required;
- Use of acoustic louvers where required; and
- Attenuation measures applied where applicable.

Acoustic design guidance and performance criteria can be found in CIBSE Guide B "Heating, ventilating, air conditioning and refrigeration" and SHTMs 03-01 and 08-01.

8.6.8 Daylight

An Authority should consider and detail its requirements in respect of daylight performance. A Good Industry Practice level of performance may be achieved through compliance with credit Hea1 under BREEAM 2014 which requires, under set design conditions, at least 80% by floor area of occupied staff and public areas to have an average daylight factor of 2% or more and, in addition, at least 80% by floor area of occupied patients areas and consulting rooms to have an average daylight factor of 3% or more.

An Authority should further consider its requirement in respect of achieving the 'view out' criteria under the same credit to facilitate adequate views out from all occupied areas.

An Authority should state the ways in which Sub-hubCo should present daylighting design performance, for example using certified software.

8.7 Incoming Services

8.7.1 General

An Authority should consider its requirements in relation to incoming Utilities, the need for new Statutory Authority connections and/or connections to existing Authority services/Utilities.

Connection to existing Utilities connections on Site may reduce costs on the Project, however risks in association with re-use of existing services (including pass through costs and VAT reclamation issues) need to be assessed by an Authority and its advisors.

In detailing the Incoming Services requirements, an Authority should consider the requirements for supplies to include spare capacity for future adaptability or expansion where identified in chapter 3.7. (I.e. 25% spare capacity for future use)

8.7.2 Security of Incoming Supplies

An Authority should set out Sub-hubCo's responsibility to ensure:-

- Energy, water, power supplies, and communication supplies to and within the Facilities are maintained by agreement with the Utilities suppliers and the Authority.
- Sub-hubCo shall develop a strategy to ensure the security of the supply. Sub-hubCo shall be required to demonstrate the feasibility of the strategy to the satisfaction of the Authority.
- Sub-hubCo shall investigate adequacy, and provide the Authority a report on location and number of connections of main's water supply, gas and electrical supplies around and to the Site. Sub-hubCo shall ensure their mains water, gas, electrical and data/telecommunication connections to the Site maintains an adequate, autonomous and robust service and shall submit full connection details with their proposals.

An Authority should consider and detail its requirements related to standby generator requirements and capacity for 'Essential' electrical services with its technical advisors and guidance and recommendations of which are provided in SHTM 06-01.

8.7.3 Provision for Isolation

An Authority should set out Sub-hubCo's responsibility to ensure:-

- Sub-hubCo shall provide external isolation of water and energy supplies to the new Facilities and internal isolation to specific units/departments.
- Local isolation of the water supply to all sanitary appliances, and at the final equipment connection points, shall be provided.
- Sub-hubCo shall ensure that all sections of the supply mains, whether supplying electricity, gas or fluids, can be taken out of service for connection and maintenance without interrupting the supply to any Retained Estate buildings.

An Authority should consider other specific areas/services which have particular local isolation requirements, for example services to single bedroom en-suites outwith clinical areas to mitigate disruption to patients (particular relevance for Mental Health wards).

8.8 Mechanical Systems

8.8.1 Building Management Systems & Controls

An Authority, with its technical advisors, should consider BMS requirements respective of the Project.

Smaller Facilities may not require the level of detail provided within the guidance notes and should be scaled as appropriate.

An Authority should consider all elements/systems/Plant its requirements monitored, controlled and recorded on the BMS. The following sub-headings provide additional prompts for detailing BMS requirements:

(i) Zone Control

An Authority should set out Sub-hubCo's responsibility to ensure:-

- Individual temperature control for all zoned areas
- 24 hour areas should be independently controlled from non 24 hour zones.
- Sufficient monitoring and temperature sensing should be provided to provide an accurate and cost effective zonal control.
- Zoning shall take cognisance of building orientation and elevation design.

(ii) Optimisation & Compensation

An Authority should set out Sub-hubCo's responsibility to ensure Good Industry Practice is adhered to regarding control regimes incorporating time, optimisation and weather compensation.

(iii) Smart Metering

An Authority should set out Sub-hubCo's responsibility to provide smart meters to monitor and record energy consumption on Site.

An Authority should confirm the level of metering and sub-metering required within the Facilities, by building service and fuel type.

(iv) Smart Meter Type

An Authority should set out Sub-hubCo's responsibility to ensure the new smart meters must be capable to 'store measured energy consumption data for multiple time periods; and at least half hourly' and they must 'provide remote access to such data by the licensee'. The meter shall allow access to data to be available in a day + one.

(v) Communication Protocol

An Authority should consider its requirements for open protocol systems to and compatibility with existing facilities systems, and detail how the systems should interface/connect.

(vi) User Interface

An Authority should set out Sub-hubCo's responsibility to ensure:-

- Smart meters have interface with the BMS
- Sub-hubCo shall provide the Authority with a system capable of remote off-site access through the BMS. The links shall ensure the Authority can monitor internal and utility consumptions / trends and read access Plant operation and alarms. Software access to be security password controlled.
- Sub-hubCo to prepare and present sample software tutorial on BMS graphics (Graphical User Interface) to the Authority/end user for comment/approval at a time suitably in advance of completion to allow software/graphic modifications in line with the Authority comments.
- Sub-hubCo shall provide all necessary licenses for Authority access to the system.

(vii) System Selection

An Authority should set out Sub-hubCo's responsibility to ensure:-

- That all materials and equipment used are standard components, regularly manufactured for this and/or other systems and not custom designed especially for this project.

Sub-hubCo shall confirm that both the hardware and software shall be fully supported for a minimum period of 15 years from the Completion Date. Future compatibility shall be supported for no less than 10 years from the Completion Date.

8.8.2 Main Water Connection to the Site

An Authority should consider the need for a new local Scottish Water network connection or connection to an existing Site connection, and set out Sub-hubCo's responsibility in designing, procuring and making the connection therein

Where connection to a Retained Estate connection is proposed and agreed, an Authority should consider the following drafting:

In connection to Retained Estate Mains Water services, Sub-hubCo shall engage the Authority in the proposals, including connection points, and provide all supporting evidence to confirm that the existing supply is suitable in terms of available capacity and quality of supply. All works in connection with the Authority's existing main water infrastructure shall be agreed in advance with the Authority including all design, construction and maintenance proposals, working method statements, and programmes of work. The Retained Estate, or any buildings within the Site which are live during construction, shall not be disrupted in anyway in connecting, setting to work and commissioning an existing main water connection to the Facilities. Sub-hubCo shall provide an interface programme to detail such works.

An Authority should consider the need for a single or, where resilience requires, a double connection to the Site.

8.8.3 Site Mains Water, Fire Water, Quality & Distribution

An Authority should set out Sub-hubCo's responsibility to ensure:-

- Sub-hubCo shall filter the Site potable water to the criteria set out in CIBSE Guides, SHTMs and commensurate with the piping material proposed.
- In determining the pipework material the Sub-hubCo shall take cognisance of the latest best practice Scotland.
- Water services for firefighting purposes shall be provided in line with Sub-hubCo's Proposals and Fire Strategy.
- Sub-hubCo shall review the requirements for fire hydrants, sprinklers etc. with the relevant Local Building Control Department and the relevant Fire and Rescue Service.
- Where firefighting water is required, Sub-hubCo shall be responsible for confirming the water services are sufficient in regards to the pressure and flow rates. Any firefighting water tanks shall be buried.
- All Fire Fighting water proposals shall be agreed with the Authority.

8.8.4 Choice of Fuels

An Authority should set out Sub-hubCo's responsibility for determining the philosophy for the provision of fossil fuels to the Site. Sub-hubCo shall be responsible for, and shall include for, all works in connection with the supply of fossil fuel services to the Site, including liaison with statutory authorities, procurement of the supplies, connection of the mains supplies to the Facilities and all associated ground works and making good, including those out with the Site boundary

8.8.5 Gas Installations

An Authority should set out Sub-hubCo's responsibility for any gas connections and installations. An Authority should consider the need, or not, for gas to serve catering facilities for the Project.

8.8.6 Heating System

An Authority should consider its requirements set out Sub-hubCo's responsibility for heating systems in the Facilities.

Areas of consideration may include:

- Need for provision of high efficiency heat generation plant
- Heating controls being user friendly and located relevant to approved Users
- Temperature adjustment requirements, and whether they should be locally and/or centrally provided
- Need for pipework arrangements to suit heating zones agreed with the Authority (in order to time control and set back department/units as required)
- Need for standby heating services i.e. N+1 heat generation provision
- Any specific Authority heating protocol/design requirements;
- Detailing which rooms, if any, require local user control;
- Whether low surface temperature type emitters, with a maximum surface temperature in the occupied zone of 43°C, are required;
- The need for resilience in heating plant for resilience purposes;
- The need for the heating system to be controlled through the BMS; and
- The need for warm air curtains over main building entrances and in draft lobbies, with speed and output control, to provide a barrier to the ingress of cold air and drafts, and aid the evaporation of water at entrance locations.

8.8.7 Domestic Water Services

An Authority should consider where in the facilities mains water supplies are required.

Where specific, an Authority should consider its specific requirements for water dispensers – location, installation requirements (i.e. drainage) etc.

An Authority should confirm the hours of water storage required for the Facilities. Guidance may be sought from the SHTM 04-01 and from technical advisors to ensure storage provides the relevant requirement for resilience on mains water loss, but also considers legionella control.

An Authority should also consider:

- Any specific Authority domestic water use protocol/design requirements;
- Leak detection requirements within the Facilities; and
- The need for proximity detection shut offs for water supply to toilet areas.

8.8.8 Hot Water Supply

An Authority should consider and set out Sub-hubCo's responsibility for the provision of hot water, including the temperature of supplies in areas throughout the Facilities i.e. maximum temperatures of hot water for the Public and Users and that for operational use (DSRs, Kitchens etc.).

An Authority should consider its requirements for either water boilers or 'zip' taps to provide boiling water for pantry and kitchen areas.

8.8.9 Mechanical Ventilation, Air Conditioning and Comfort Cooling

An Authority should review mechanical ventilation, air conditioning and cooling requirements in respect of Sub-hubCo's thermal and air quality comfort analysis during Stage 1 development.

Where identified as required, an Authority should review specific requirements with its technical advisors.

Issues for consideration include:

- Need for systems to avoid draughts
- Design to minimise noise intrusion in to the space
- Selection of cooling refrigerants to take in to consideration environmental impact

8.8.10 Combined Heat and Power

An Authority, in collaboration with its advisors and Sub-hubCo to consider the environmental benefits and economic viability of a suitably sized combined heat and power system (CHP).

Consideration shall be given to the maintenance implications of such a system, and fuel supply being a pass through cost in assessments. If beneficial to the Authority and Sub-hubCo, Sub-hubCo shall incorporate CHP into the building services philosophy for the Facilities.

Should CHP be adopted in to Sub-hubCo's Proposals, the system shall be sized to best match the needs of the Facilities i.e. matched to the base demand of the Facilities or provided in modular units to step up to meet demand as required. Waste heat shall be fully utilised in the heating of the Facilities and its services, and not discharged by other means.

If adopted, CHP should be considered the lead heat and energy providing system. Sub-hubCo shall prepare a primary energy strategy detailing the interface of CHP with supporting heat and power services, which shall be agreed with the Authority, and followed in operation unless agreed in writing with the Authority otherwise.

8.8.11 Medical Gases

An Authority should consider the requirement for medical gases.

Where identified as required, an Authority should detail the types of medical gases required in the Facilities i.e. Oxygen, medical air, surgical air etc. inclusive of the system type, i.e. VIE for oxygen systems. Locations of outlets shall be agreed in the RDS.

An Authority should further consider requirements for Independent Authority assessor involvement in the design, installation and acceptance of medical gases.

8.8.12 Medical and Dental Vacuum

An Authority should consider the requirement for medical and/or dental vacuum.

Where identified as required, an Authority should agree locations of vacuum services in the RDS.

An Authority should further consider requirements for Independent Authority assessor involvement in the design, installation and acceptance of medical gases.

8.8.13 Anaesthetic Gas Scavenging System

An Authority should consider the requirement for anaesthetic gas scavenging systems (AGSS).

Where identified as required, an Authority should agree locations of AGSS services in the RDS.

8.8.14 Non-Medical Gases

An Authority should consider the requirement for non-medical gases such as Pathology Laboratory Gas Systems.

Where identified as required, an Authority should agree locations of non-medical gases in the RDS.

8.8.15 Bedhead Services

An Authority should identify the requirements for any specialist bedhead services.

Where identified as required, an Authority consider, with its technical advisors, the responsibilities of the design, provision/construction, maintenance and management of Bedhead Services.

Where a system's responsibilities are shared between Sub-hubCo and the Authority, shall detail these requirements within the Specialist Services Responsibilities Matrix in chapter 10 of Sub-Section C. Cross reference to the Specialist Services Responsibilities Matrix to be made here where relevant.

8.8.16 Sterilisation

An Authority should identify where sterilisation services are required, for example a Local Decontamination Unit, and any particular specialist requirements therein i.e. fogging.

Where identified, an Authority should confirm locations and detail requirements for such systems.

8.8.17 Special Water Services

An Authority should consider and list required special water systems such as de-ionised water to laboratory equipment or reverse osmosis (RO) systems for Renal wards.

Where identified, an Authority should confirm locations and detail requirements for such systems.

8.8.18 Laboratory Gases

An Authority should consider its requirement for laboratory gas systems such as natural gas outlets, nitrogen or carbon dioxide.

Where identified, an Authority should confirm locations and detail requirements for such systems.

8.8.19 Local Exhaust Ventilation Systems

An Authority should consider its requirements for LEV systems, including any known kitchen canopy requirements.

8.8.20 Fume Cupboard & Micro-biological Safety Cabinets

An Authority should consider its requirements for fume cupboard and/or safety cabinets.

Where identified, an Authority should confirm locations and detail requirements for such systems.

8.8.21 High Specification Air Conditioning Systems

An Authority should consider its requirements for specific air conditioning systems throughout the Facilities. For example laminar flow rooms and / or operating theatres or areas handling radio isotopes or other radiological contaminants.

Where identified, an Authority should confirm locations and detail requirements for such systems.

8.8.22 Ventilation and Air Conditioning of Isolation Rooms

An Authority should consider its requirements for specific ventilation systems for isolation rooms, i.e. where pressure differentials are required for clinical functionality.

Where identified, an Authority should confirm locations and detail requirements for such systems.

8.8.23 Pneumatic Air Tube Transport Systems

An Authority should consider its requirements for a PTS system, including all associated links within the Facilities and any Retained Estate.

Where identified, an Authority should confirm locations and detail requirements for such systems; template drafting provided for consideration and amendment.

8.8.24 Drainage

An Authority should confirm locations for drainage within the Facilities, particularly those of a specialist nature i.e. in laboratories.

8.8.25 Fuel Storage Tanks

An Authority should consider its requirements for fuel storage tanks i.e. for standby generator, heating plant or CHP systems.

Where identified, an Authority should confirm the specific requirements, including volume sizing. Guidance of which is provided in SHTM 06-01 for standby generator operation.

An Authority should further consider its requirements for fuel storage tanks location i.e. so as not to cause an eye-sore, or not to be buried for environmental reasons.

8.9 Electrical Systems

8.9.1 Main & Sub-Main Distribution

An Authority should consider its requirement and Sub-hubCo's responsibilities for a new mains Utilities power network connection or connection to an existing Site connection.

Where connection to a Retained Estate connection is proposed and agreed, an Authority should consider the following drafting:

Where Sub-hubCo propose connection to the existing Retained Estate mains electricity connection, Sub-hubCo shall engage the Authority in the proposals, including connection points, and provide all supporting evidence to confirm that the existing supply is suitable in terms of available capacity and quality of supply. All works in connection with the Authority's existing main electricity infrastructure shall be agreed in advance with the Authority including all design, construction and maintenance proposals, working method statements, and programmes of work. The Retained Estate, or any buildings within the Site which are live during construction, shall not be disrupted in anyway in connecting, setting to work and commissioning an existing main electricity connection to the Facilities. Sub-hubCo shall provide an interface programme to detail such works.

An Authority should confirm the level of spare capacity required in new mains power connections for future resilience purposes.

An Authority should consider the resilience requirements of the Facilities, regarding the provision of a single or double mains power connection to the Site. Advice may be sought in SHTM 06-01.

8.9.2 Standby Generation

An Authority should consider, with its technical advisors, the requirements for Standby Generation for the Facilities.

Where identified as required, an Authority should confirm the level of coverage of the Facilities i.e. 100% standby facility, or coverage of 'essential' supplies only. Guidance may be sought in SHTM 06-01.

An Authority should further consider the needs of the generator to be based on an N+1 arrangement for further resilience.

8.9.3 Uninterruptible Power Systems

An Authority should consider its requirements for UPS systems to serve critical/essential services such as life supporting equipment or Node Rooms.

Where identified, an Authority should confirm UPS requirements within this sub-chapter and in the RDS.

An Authority should further confirm the specific requirements of the UPS i.e. length of time it should support equipment, and redundancy requirements.

Regardless of an Authority's requirements, Sub-hubCo may provide UPS to serve equipment to ensure its compliance with the Availability criteria in Schedule Part 14 (Payment Mechanism).

8.9.4 Electrical Small Power

An Authority should consider its requirements and set out Sub-hubCo's responsibilities for small power provision. An Authority may consider the following in respect of small power:

- Provision of small power outlets for all Plant, Equipment and User/operational requirements throughout the Facilities
- Specific wiring requirements/ materials
- RCBOs to be provided to all circuits
- Location of power switches and any engraved switching requirements
- Provision of Isolated Power Systems, and respective UPS systems, for electrical services identified as serving Group 1 and 2 medical locations, where relevant to the Facilities and in accordance with SHTM 06-01

8.9.5 Lighting

Lighting is important to the operation of the Facilities and an Authority, with its technical advisors, should consider the specific requirements of the Facilities, and responsibilities of Sub-hubCo, when completing this sub-chapter.

Relevant guidance notes include CIBSE Lighting Guides, in particular Lighting Guide 2 "Hospitals and Health Care Buildings".

An Authority should further consider specific lighting design guidance relative to the Services provided i.e. making reference to the University of Stirling's Dementia Design Guide "Light and lighting design for people with dementia" for older and elderly peoples services.

The following sub-headings provide prompts for lighting consideration points:

8.9.6 Interior Lighting

An Authority should consider the following, with its technical advisors (and where relevant Sub-hubCo):

- Minimum lux levels are achieved as set out in the RDS or Environmental Matrix;
- Any areas where specific task lighting is required and to what level;
- The lighting design to take in to consideration maximisation of 'daylighting' through daylight linking;
- Luminaires shall be selected to minimise energy consumption. For example reviewing the benefits and economic viability of LED light fittings throughout the Facilities, taking in to consideration whole life cycle costs and energy performance;
- Lighting being sufficient for security, such as night lighting and linking with CCTV operations;
- Lighting design meets the needs of spaces with multiple uses;
- The need for corridors to be multi circuited to facilitate use of 100% or 50% of the luminaire, and/or to be dimmable;
- Where a corridor is over 15 metres in length, zoned lighting to be provided; and
- Where food is prepared or areas are classed as 'hazardous' or specialist, Sub-hubCo shall provide luminaires which are suitable for the activities in the room and cleaning regimes proposed.

8.9.7 Exterior Lighting

An Authority should consider its requirements for exterior lighting within the wider Site, garden areas and/or courtyards.

External lighting considerations include:

- Minimum lux levels are achieved as set out in Good Industry Practice and security guidance
- Linking is provided with CCTV operation
- Light pollution is minimised and is in line with Planning Guidance
- External luminaires do not impact on the operation of internal requirements
- Luminaires are robust and weather and vandal proof
- Luminaires shall be selected to minimise energy consumption. For example reviewing the benefits and economic viability of LED light fittings throughout the Facilities, taking in to consideration whole life cycle costs and energy performance

Particular attention should be afforded where the use of such spaces is required all year round and which form part of operational functionality i.e. lux levels may require to be higher than those for secure lighting only to facilitate garden/courtyard use in the early evenings during winter.

8.9.8 Lighting Control & Wiring

An Authority should consider, with its technical advisors, its requirements for lighting controls and wiring. Particular issues may include:

- Maximising energy performance through considerate automated lighting control i.e. presence detection and daylight linking
- Ability for scheduling lighting for zones/departments
- Requirements for dimming
- Locations of lighting control i.e. User accessible or located for approved persons
- Detailing specific control/switching requirements for all areas within the Facilities – this may refer to information in the RDS or Environmental Matrix. For example, manual/automatic light switching and any night and/or observational lighting control for inpatient bedrooms

8.9.9 Emergency Lighting

An Authority should set out Sub-hubCo's responsibility to ensure they comply with the requirements of BS 5266 Emergency Lighting and European Legislation CEN/TC 169 WG3 Emergency Lighting of Buildings, achieving requirements through use of central supplied or self-contained emergency luminaires. Sub-hubCo shall demonstrate the whole life cost appraisal of central supplied or self-contained emergency luminaires.

8.9.10 Standby Lighting

An Authority should consider its requirement for locations requiring standby lighting.

Where Facilities are covered via 100% standby generators, all lighting will be covered. Where 'essential' only power is covered, an Authority should confirm locations standby lighting is required i.e. surgery spaces, treatment rooms, x-ray rooms etc.

8.9.11 Lifts

An Authority, with its technical advisors and where deemed necessary Sub-hubCo, to confirm the requirements for lifts in the Facilities.

Where lifts are identified as required, an Authority should consider location, type, finish, controls, communication, environmental conditions, lighting and access control/security requirements.

8.9.12 Clock Installations

An Authority should consider its requirements for mains powered, synchronised clocks.

Where identified as not required, the sub-chapter may be removed.

8.9.13 Disabled Refuge Call System

An Authority should consider where a disabled refuge call system shall report to i.e. Reception/Security Office and the requirement for voice communication between refuge areas, the central location and any portable handsets.

8.9.14 Induction Loop

An Authority should consider its requirements for Induction Loop systems, including type i.e. fixed and/or portable.

An Authority should confirm the type and location of induction loop coverage.

8.9.15 Intercoms

An Authority should consider its requirements for intercom systems throughout the Facilities.

An Authority should confirm type and location of intercom systems i.e. audio only at front reception for out of hours access to a manned office/security pager system, and video type entry system at all department entrances.

An Authority should consider and detail any specific intercom system requirements i.e. location of receivers within wards/departments and any pager type alarms notifying activation.

8.9.16 Video Telemetry

An Authority should consider its requirements for video telemetry systems throughout the Facilities.

Where identified as required i.e. for EEG tests, an Authority should confirm locations and Equipment required to facilitate its procurement and installation.

8.9.17 Public Telephone Ordering Service

An Authority should consider and detail its requirement for a public telephone ordering service within the Facilities, including any third parties it should contact.

8.9.18 Electric Vehicle Charging

An Authority should consider any requirement for electric vehicle charging points and associated electrical supply infrastructure, metering of supplies, and security/access of supply points.

8.10 Security

8.10.1 General

An Authority should consider, with its technical advisors, the responsibilities of the design, provision/construction, maintenance and management of Security services. The following sub-headings provide prompts for security service requirements to be identified.

Where a systems responsibilities are shared between Sub-hubCo and the Authority, an Authority shall detail these requirements within the Specialist Services Responsibilities Matrix in chapter 10 of Sub-Section C. Cross reference to the Specialist Services Responsibilities Matrix to be made here where relevant.

An Authority should confirm the location of central security control, monitoring and recording equipment i.e. a security office or front reception.

8.10.2 Staff Attack / Assistance Systems

An Authority should consider its requirement for a staff attack / assistance system and the functions of said system.

An Authority should confirm the preferred operational functionality of the system, including identification of the need for pagers, control panels and/or display screens (including their locations).

An Authority should consider and detail any interlinking between staff attack / assistance systems and any nurse call systems i.e. interfaced on to one infrastructure sharing pager, control panel and activation alarms.

An Authority should confirm the number of assistance transmitters/pagers required.

8.10.3 Nurse Call Systems

An Authority should consider its requirement for a nurse call system and the functions of said system.

An Authority should consider integration of the nurse call with any staff attack / assistance system, as noted above.

An Authority should consider the type of nurse call systems which are suitable for the user groups of the facility, i.e. anti-ligature type in mental health care facilities.

8.10.4 Patient and Equipment Tracking System

An Authority should consider its requirements for patient and equipment tracking, and Sub-hubCo's responsibility, for example provision of infrastructure only for Authority system connection and control therein.

An Authority should consider the use of the Facilities Wi-Fi system for any asset tracking.

8.10.5 Alarms & Intruder Detection System

An Authority should consider its requirements for alarms and intruder detection systems.

Areas for consideration may include:

- Types and location of detectors (i.e. dual technology detectors located adjacent to ground floor windows, doors and Rooflights)
- How intruder detection should annunciate and be raised
- How/where the intruder detection system should be set/overridden/controlled

- The need for any 3rd party alarm connections i.e. panic alarms direct to the local Police
- The need for any separate safe/Equipment alarms

An Authority should consider the requirement for such systems in locations occupied 24/7 i.e. they may not be required.

8.10.6 Security Access Control

An Authority should consider its requirements for Security Access Control.

An Authority should consider the type of security access control system and any interface with other systems, i.e. proximity cards which allow for access to other Authority facilities, or interface with cashless till systems etc.

An Authority should be as specific as possible in terms of Access Control coverage. This may be undertaken as a Stage 1 review with Sub-hubCo on early general arrangement iterations. An Authority should consider electronic access control in line with locks and locking suiting arrangement proposals for the Facilities.

An Authority should confirm whether access control system require printing facilities for photographic ID purposes.

An Authority should confirm the number of cards/pendants required to ensure adequate cost provision in Sub-hubCo's proposals. Suitable spares provision should further be allowed for.

An Authority should consider the location and ownership of the management PC i.e. to be provided by Sub-hubCo and managed by the Authority.

8.10.7 CCTV

An Authority should consider its requirements and Sub-hubCo's responsibilities for CCTV.

An Authority may consider:

- Listing areas for CCTV coverage, for example the perimeter of the site, all entry/exit points to/ from the Facilities, internal circulation spaces and critical / secure areas within the Facilities etc.
- Types of cameras to be provided
- Any Authority protocols/design guidance for CCTV
- Type, quality and longevity of recordings
- How and where monitoring will take place and any monitor specification requirements
- Ability to secure recordings
- Ability to write recordings to DVD/USB
- Any interface requirements with any Retained Estate CCTV coverage i.e. shared facilities.

8.10.8 Clinical Service Equipment

An Authority should consider and detail security requirements for clinical service equipment such as alarming of drug cabinets, pharmacy drug fridges etc. and associated infrastructure i.e. reporting to a Security Office or similar location.

8.10.9 Car Park Barriers

An Authority should consider its requirements for car park barriers. Where identified as not required, this sub-chapter may be removed.

8.11 TV & Radio Facilities

An Authority should consider the needs for TV and Radio facilities within the Facilities. Identification of requirement should be made in the RDS or Environmental Matrix.

An Authority should consider the requirement for TV and Radio services to be operated through the ICT (data) system, rather than traditional co-axial.

An Authority should consider the TV and Radio facilities required for digital flat screens and other such electronic devices located throughout the Facilities.

An Authority should consider the TV and Radio services required for the purposes of displaying live and recorded digital TV/ Radio and other digital media (live or recorded), together with displaying digital signage.

8.12 Lightning Protection & Earthing

An Authority should set out Sub-hubCo's responsibility to ensure:-

- Sub-hubCo shall provide a lightning protection system for the protection of the structure, the contents and occupants. The lightning protection installation shall be in accordance with the latest version of BS EN62305
- Sub-hubCo shall provide a system of earthing that shall ensure sufficient and fast operation of protective systems in the case of earth faults.
- The earthing system shall comply with BS7671:2008 Requirements for electrical installations (IEE Wiring Regulations), BS7430:1998 Code of Practice for earthing and with the Electricity at Work Regulations 1989

8.13 Fire Detection & Suppression Systems

An Authority, with its technical advisors, should consider its requirements and Sub-hubCo's responsibilities for the provision of fire detection and suppression systems.

An Authority should set out its requirements in respect of the required compliance of the system and any Authority specific protocols/guidance documents and future compatibility expansion.

(i) [Sprinklers]

An Authority should consider, with its technical advisors, the need for sprinklers based on Facilities and insurance requirements. Where identified as required, the below drafting is for consideration:

Sub-hubCo shall provide the Facilities with a comprehensive sprinkler system which must be interfaced with the fire alarm for the purposes of raising an alarm and monitoring.

Sub-hubCo shall provide sprinkler protection to those departments surrounding high dependency departments (above, below and adjacent on the same level) as required by SHTM 82 Section 3.

Sprinkler protection shall be designed and installed in full conformity with all current Loss Prevention Certification Board (LCPB) guidance relating to automatic sprinkler installations, together with the current version of BS 9999 and all other relevant guidance and applicable standards. Systems shall be designed having regard to a properly undertaken fire risk assessment which shall be used to inform all decisions regarding the hazard classification for the risk. The facilities shall be designed to Ordinary Hazard Group [X].

All components used shall be LPCB listed. The system is to be serviced and maintained in accordance with the Loss Prevention Standard 1050. The system shall be required to have an independently accredited certification of conformity from LCPB.

A single wet control valve set shall control the whole of the sprinkler installation. The distribution mains shall be routed through the circulation areas, with branch range pipework being taken to serve each of the heads within the various rooms/ areas of the building.

Sprinkler heads above ceilings and in locations of non-visibility shall be of the brass type. Where suspended ceilings are involved, the sprinkler head shall be of the recessed flush fitting type having a cover plate incorporating a fusible link.

All sprinkler head locations shall be co-ordinated with other engineering services in an aesthetically pleasing manner.

An LPCB approved sprinkler tank with electronic and diesel pump set² shall be provided with an appropriate capacity/ duty. All sprinkler tanks shall be buried.

8.14 Engineering Flexibility & Zoning

An Authority should set out Sub-hubCo's responsibility to ensure the location of engineering and utility services shall be co-ordinated with the structure and as far as is reasonably practicable shall not constrain or conflict with Operational Functionality. Heating, ventilation, electrical and medical gas zoning shall be configured to promote flexibility in order to enable re-modelling and re-planning to be undertaken at a future date.

All engineering services shall be zoned with isolation and safety provision, for the whole of the Facilities and for individual units and departments. Sub-hubCo should also ensure that zoning accounts for:

- Solar movement;
- Standard operating hours of the various departments (i.e. 24 hour vs. 12 hour and 7 day vs. 5 day a week); and
- The necessity for isolation of part of the Facilities without affecting the entire Facilities.

8.15 Services Capacity Reserve

An Authority, with its technical advisors, to consider specific requirements for Services capacity reserve in relation to the Facilities flexibility and future proofing requirements, and any adaptability and expansion requirements detailed in chapter 3.7.

For instance 25% spare on mains Utilities connections and 10% spare capacity on main plant and distribution runs within the Facilities.

² If standby generators are proposed for the Facilities, 2 electric pump sets may be provided

An Authority should further consider, where future expansion is identified, requirements to leave 'spare' space adjacent to Plant areas to facilitate future Plant installation expansion, without the need for capital investment in Plant at Practical Completion.

8.16 Service Routes

An Authority should set out Sub-hubCo's responsibility to ensure:-

- All service voids, risers and other spaces shall allow for installation of additional services and shall provide a defined reserve of a minimum 25% of useable area through routing cross sectional area. All isolating valves and other items requiring particular access shall be positioned at convenient locations with permanent access provision and which do not impede execution of the operational functions of the space.

8.17 Commissioning & Testing

An Authority should consider its requirements and Sub-hubCo's responsibilities for any specific commissioning and testing requirement it may have over Good Industry Practice. This may include any specified authorised person it may wish to be present during the commissioning and testing stages of certain services and systems.

Reference may be made to Appendix B (Completion Criteria) of Schedule Part 10 (Outline Commissioning Programme) and Section 7 (Thermal and Energy Efficiency Testing) of Schedule Part 6 (Construction Matters).

9 Information and Communications Technology (ICT) Requirements

This chapter 9 sets out the ICT requirements for the project. In completing chapter 9, an Authority may seek additional guidance from its estates team, Information & Communications/Network teams, security team and/or technical advisors.

9.1 Introduction

An Authority should consider the importance of information and communication in the provision of services in the modern clinical environment; having the right information available and efficient means of communication enables improved efficiency. There is an increasing reliance on ICT infrastructure to meet these requirements both in terms of performance and availability.

An Authority should set out that the following sub-headings provide the principles to the delivery of ICT systems and should define the responsibilities of Sub-hubCo.

9.2 Overall Requirements

An Authority should consider their ICT requirements in relation to any strategic guidance specific to the Facilities or Authority, for example any Authority Design Manuals or E-Health Strategies for healthcare Facilities. Reference may be made to chapter 10 of Sub-Section C which sets out the responsibilities in the delivery of each service.

9.3 Design Requirements

9.3.1 User / Functional Requirements

An Authority should set out Sub-hubCo's responsibility to ensure:-

- Liaison with the Authority to robustly identify and capture all User and Functional Requirements required within each ICT system to support key departmental operational requirements.
- That these captured user and functional requirements are achieved within the design and construction of the ICT systems, including the selection of appropriate and compatible manufacturer products and systems.

9.3.2 System Availability

An Authority should consider, with its technical advisors, the Availability requirements of the Facilities, providing targets as necessary within an Appendix to the ACRs.

9.4 Minimum Engineering Standards

An Authority, with its relevant advisory and ICT/Network specialist teams, shall review all ICT standards and requirements respective of the Facilities and the Site, setting out Sub-hubCo's responsibility to comply with agreed documents. Refer to Appendix C section 1 for suggest list of standards.

9.5 Server and Node Rooms

An Authority should consider, with its technical advisors, its requirements and Sub-hubCo's responsibilities associated with Server and Node Rooms.

Items for consideration include:

- Security of rooms
- Minimum number of rooms
- Location of rooms i.e. not in basements
- Minimum size of rooms
- Proposed cabinet sizes and minimum clear access/maintenance space and any spare capacity requirements
- Environmental conditions location of Server Rooms.
- Requirement for UPS
- Description of requirement for Server Rooms and where Server Rooms are sited away from the Facilities, outwith Sub-hubCo's Site, this should be detailed
- Back up copper cabling

9.6 Structured Cabling System

An Authority should consider its requirements, and Sub-hubCo's responsibilities for the structured cabling system (SCS) with its ICT/Network team specialists.

Items for consideration include:

- What the SCS should provide for i.e. data and voice network
- What it should support i.e. BMS, CCTV, online systems, VOIP

9.6.1 Cabling

An Authority should consider its specification requirements for the structured cabling type with its ICT/Network team specialists i.e. Cat 6a, and any spare capacity provision required i.e. 25% spare space within cabinets/voids.

9.6.2 Fibre Optic Cabling

An Authority should consider its specification requirements for fibre optic cabling type with its ICT/Network team specialists i.e. diverse routing between server rooms and node rooms for resilience, type and number of cores within cables, preferred connector types, agreement or not of Sub-hubCo using Authority data networks/infrastructure.

9.6.3 Data Patch Panels

An Authority should set out Sub-hubCos responsibility to take cognisance of the ICT requirements and provide suitable patch panels for their infrastructure cabling.

9.6.4 Data Outlets

An Authority should set out Sub-hubCo's responsibility to ensure:-

- The data and voice outlets shall be RJ45 and shall utilise lead-frame technology for improved performance and reduced depth. The outlet contacts shall be silver-plated and positioned at 45° to the copper core of the cable to increase the number of possible re-terminations and provide a gas tight seal.
- The outlets shall be appropriate for the Authority's Construction Requirements and the rooms / spaces identified.

9.6.5 Ancillaries

An Authority should set out Sub-hubCo's responsibility to ensure:-

- Cable trays, conduit drops and 3 chamber containment shall be capable of allowing space for a [25]% spare capacity.
- Cable trays must cross all other cable trays at 90° angle.

9.6.6 Telephony tie cables

An Authority should set out Sub-hubCo's responsibility to ensure:-

- Telephony tie cables shall be terminated on Sub-hubCo supplied RJ45 patch panels at each end.
- Telephony tie cables shall be four wire terminated to pins 1, 2, 4 and 5 at each end.
- Telephony tie cables patch panels shall be clearly identified and separate and easily distinguishable from other patch panels.

9.6.7 Outlet identification definition

An Authority should set out Sub-hubCo's responsibility to ensure:-

- The outlets shall be appropriate to meet the requirements of the Authority's Sub-Section D of Schedule Part 6 (Construction Matters); and the rooms / spaces identified.
- The outlets shall be presented flush with the face plate.
- Outlets shall be identified with Node number, panel number and port number. Thus a port labelled as N1P4-34 shall be connected to port 34 on patch panel 4 in node room 1.

9.7 Wireless Network

An Authority should consider its requirements for wireless network coverage throughout the Facilities and to what extent Sub-hubCo's responsibilities lie i.e. the infrastructure up to concealed double data points in ceilings. 100% wireless coverage is considered Good Industry Practice, however should be assessed by an Authority and its advisors specific to the relevance for the Facilities.

An Authority should work with Sub-hubCo during Stage 1 to initiate computerised wireless access surveys to confirm the number of wireless access points required for the Facilities, based on the geometry and construction proposals from Sub-hubCo's design.

9.8 External Services

An Authority should consider and detail, with its technical advisors and ICT/Network specialists, external cable requirements, including mains communications connections and/or connections to remote Server Rooms and/or other facilities.

An Authority should consider location, access and resilience of these services detailing fibre and copper cabling requirements. Dual, diversely routed connections are advised for resilience purposes.

9.8.1 Communication & Connectivity with Retained Estate Infrastructure

An Authority should consider, with its technical advisors, any communication and/or connectivity with any existing facilities or any Retained Estate.

9.9 Programming of Works

Refer to template for proposed drafting for consideration.

10 Specialist Services Responsibilities Matrix

This chapter 10 sets out the Specialist Services Responsibilities Matrix for the project. In completing chapter 10, an Authority may seek additional guidance from its estates team, Information & Communications/Network teams, security team and/or technical advisors.

An Authority should consider the completion of the Specialist Services Responsibilities Matrix based on the respective requirements of its Facilities, populating the body responsible for each aspect of the Service/Technology. Indicative responsibilities are pre-populated, however should all be reviewed, adopted and amended as appropriate to the Project.

Where Services are solely designed, constructed, managed and maintained by Sub-hubCo, this may be stated within the Service descriptive elsewhere in this Sub-Section C and removed from this Responsibilities Matrix.

Those Service/Technologies listed in the table are non-exhaustive.

Any Site specific interface issues may be addressed here (Utilities interface issues etc.)

Service / Technology	System Design	Construction / Provision	Management	Maintain/ Lifecycle Replace
1. Information Communications Technology (ICT)				
System management	N/A	N/A	Authority (equipment) / Sub-hubCo (infrastructure)	Authority (equipment) / Sub-hubCo (infrastructure)
System architecture, design	Sub-hubCo to Authority approval	Sub-hubCo	Authority	Sub-hubCo
Hardware (inc. PCs, printers)	Authority	Authority	Authority	Authority
Hubs, servers/switches	Authority	Authority	Authority	Authority
Authority Server and Node Rooms	Sub-hubCo to Authority approval	Sub-hubCo	Authority	Sub-hubCo
Containment	Sub-hubCo to Authority approval	Sub-hubCo	Sub-hubCo	Sub-hubCo
Cabling and faceplates	Sub-hubCo to Authority approval	Sub-hubCo	Sub-hubCo	Sub-hubCo
Testing & Commissioning of Sub-hubCo Equipment	N/A	Sub-hubCo (with Authority in attendance)	Sub-hubCo	Sub-hubCo
Testing & Commissioning of Authority Equipment	N/A	Authority	Authority	Authority
ICT dedicated UPS	Sub-hubCo to Authority approval	Authority	Authority	Authority
Links to Other Organisations	Sub-hubCo (infrastructure only) to Authority approval	Sub-hubCo (infrastructure only) / Authority (equipment)	Authority (equipment) / Sub-hubCo (infrastructure)	Authority (equipment) / Sub-hubCo (infrastructure)

Service / Technology	System Design	Construction / Provision	Management	Maintain/ Lifecycle Replace
Video Conferencing links/ facilities – external, internal	<i>Sub-hubCo (infrastructure only) to Authority approval, refer Schedule Part 11, Equipment Schedule</i>	<i>Sub-hubCo (infrastructure only) / Authority (equipment)</i>	<i>Authority (equipment) / Sub-hubCo (infrastructure)</i>	<i>Authority (equipment) / Sub-hubCo (infrastructure)</i>
2. Telephone System				
System management	<i>N/A</i>	<i>N/A</i>	<i>Authority</i>	<i>Authority</i>
System architecture/design	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
PBX System	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
Operator Console	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
Hand sets	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
Pagers / staff location system	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
Containment	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Cabling and faceplates	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Testing & Commissioning of Sub-hubCo Equipment	<i>N/A</i>	<i>Sub-hubCo (with Authority in attendance)</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Testing & Commissioning of Authority Equipment	<i>N/A</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
Final connections to PBX system	<i>N/A</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
Telephone System dedicated UPS	<i>Sub-hubCo (infrastructure only) - Authority to provide as a part of Hardware</i>	<i>Sub-hubCo (infrastructure only)</i>	<i>Authority</i>	<i>Authority</i>
3. Bedhead Services				
System management	<i>N/A</i>	<i>N/A</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
System architecture/design	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Nurse Call	<i>Sub-hubCo to Authority approval (see 4. Nurse Call)</i>	<i>Sub-hubCo (see 4. Nurse Call)</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Medical gases	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Electrical supply	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Bed lighting	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>

Service / Technology	System Design	Construction / Provision	Management	Maintain/ Lifecycle Replace
ICT – Clinical (Data Outlet(s))	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
ICT – Patient (Data Outlet(s))	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Testing & Commissioning	<i>N/A</i>	<i>Sub-hubCo (with Authority in attendance)</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
4. Nurse Call / Staff Attack				
System management	<i>N/A</i>	<i>N/A</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
System architecture/design	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Nurse Call System	<i>N/A</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Containment and cabling	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Testing & Commissioning	<i>N/A</i>	<i>Sub-hubCo (with Authority in attendance)</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
5. Fixed Induction Loops				
System management	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
System architecture/design	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
System provision	<i>N/A</i>	<i>Sub-hubCo to install complete system with potential for expansion</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Testing & Commissioning	<i>N/A</i>	<i>Sub-hubCo (with Authority in attendance)</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
6. Security Systems				
6.1 CCTV				
System management	<i>N/A</i>	<i>N/A</i>	<i>Authority</i>	<i>Sub-hubCo</i>
System architecture / design	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Authority</i>	<i>Sub-hubCo</i>
CCTV cameras, detectors, scanners, access units	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Authority</i>	<i>Sub-hubCo</i>

Service / Technology	System Design	Construction / Provision	Management	Maintain/ Lifecycle Replace
Monitors, multiplexes, control equipment hardware and software, recording equipment, servers	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Authority</i>	<i>Sub-hubCo</i>
CCTV Equipment Room(s)	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Authority</i>	<i>Sub-hubCo</i>
Containment and cabling	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Authority</i>	<i>Sub-hubCo</i>
Testing & Commissioning	<i>N/A</i>	<i>Sub-hubCo (with Authority in attendance)</i>	<i>Authority</i>	<i>Sub-hubCo</i>
Final connections to hardware	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Authority</i>	<i>Sub-hubCo</i>
6.2 Access systems (to be integrated with alarm system)				
Doors and restricted areas	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Authority</i>	<i>Sub-hubCo</i>
Hold open devices to minimise door damage & fire risk, and optimise “openness” of internal spaces	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
6.3 Alarms (to be integrated with access control system)				
Intruder	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Authority</i>	<i>Sub-hubCo</i>
Personal safety alarms	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Authority</i>	<i>Sub-hubCo</i>
Equipment alarms (Authority)	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Authority</i>	<i>Sub-hubCo</i>
Equipment alarms (Sub-hubCo equipment)	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Lift alarms, link to emergency base (REM or similar)	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo / Authority</i>	<i>Sub-hubCo</i>
7. Wireless Network				
System management	<i>N/A</i>	<i>N/A</i>	<i>Authority</i>	<i>Sub-hubCo</i>
System architecture / design including wireless surveys	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>

Service / Technology	System Design	Construction / Provision	Management	Maintain/ Lifecycle Replace
Wireless Network Cabling Infrastructure	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Containment and cabling	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Wireless Access Points	<i>Sub-hubCo to Authority approval</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
Wireless Access System (LAN Controllers, Wireless Control System and network interface/firewalls. This list is not exclusive).	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
Testing & Commissioning	<i>N/A</i>	<i>Sub-hubCo (with Authority in attendance)</i>	<i>Authority</i>	<i>Authority</i>
Final connections to wireless network	<i>N/A</i>	<i>Authority</i>	<i>Authority</i>	<i>Authority</i>
8. Intercom				
System management	<i>N/A</i>	<i>N/A</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
System architecture/design	<i>Sub-hubCo to Authority approval, refer Specific Clinical Service Requirements</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Intercom System	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Containment and cabling	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Testing & Commissioning	<i>N/A</i>	<i>Sub-hubCo (with Authority in attendance)</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
9. Telemetry				
System management	<i>N/A</i>	<i>N/A</i>	<i>Authority</i>	<i>Sub-hubCo</i>
System architecture/design	<i>Sub-hubCo to Authority approval, refer Specific Clinical Service Requirements</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Telemetry System	<i>Sub-hubCo to Authority Approval</i>	<i>Sub-hubCo</i>	<i>Authority</i>	<i>Sub-hubCo</i>
Containment and cabling	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>
Testing & Commissioning	<i>N/A</i>	<i>Sub-hubCo (with Authority in attendance)</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>

Service / Technology	System Design	Construction / Provision	Management	Maintain/ Lifecycle Replace
10. Others				
Public Area Phones	<i>Sub-hubCo (infrastructure only) / Authority (handset)</i>	<i>Sub-hubCo (infrastructure only) / Authority (handset)</i>	<i>Sub-hubCo (infrastructure only) / Authority (handset)</i>	<i>Sub-hubCo (infrastructure only) / Authority (handset)</i>
Television / radio, common areas/client information systems – Group 1 Equipment as per Schedule Part 11 (Equipment)	<i>Sub-hubCo to Authority approval</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>	<i>Sub-hubCo</i>

11 Additional Specialist Requirements

An Authority should consider the addition of a separate Specialist Requirements chapter for project specific requirements i.e. a helipad or similar.

Sub Section D - Operational Specific Requirements

1 Strategic Context

[An Authority to provide background information to the Project.

An Authority to consider the strategic aims of the Facilities at a local and national level, incorporating information from the New Project Request and Outline Business Case, providing the reader with a clear understanding of the need for the Facilities]

2 Facilities Overview

[An Authority to provide detailed information on the Facilities.

The information should be comprehensive and draw on the specific needs of the Facilities in order for Sub-hubCo to be able to understand the functional and operational requirements and design Facilities which meet an Authority's needs.

Headings may consider Interfaces with Existing Facilities/Services, Facilities Design Ethos, Key Operations etc.

The information should be explicit on the clinical//educational model being implemented.

An overview of each area/department within the Facilities should be provided. An Authority shall be aware that detailed requirements for each area/department should be provided in Appendix B.

Specialist services/requirements within the Facilities which affect the clinical/educational services should also be detailed within this section, for example specific ICT or acoustic requirements]

3 Schedule of Accommodation

[An Authority to provide a briefing Schedule of Accommodation (SoA) for the Facilities listing out all departments and respective rooms in the Facilities.

The SoA shall provide indicative/mandatory room, sized by an Authority to meet the needs and to undertake the required function of each space.³

The SoA may be provided in any format, however it is anticipated it shall be in a matrix format using Microsoft Word or Excel]

³ An Authority may choose to discuss the SOA with Sub-Hubco with an eye to driving efficiency in areas through Sub-Hubco's design solution

4 Appendices

[An Authority to complete the following appendices respective to the Facilities requirements.

An Authority to provide additional appendices as it sees fit to provide relevant information to Sub-hubCo on the needs of the Facilities]

Appendix A. Departmental Adjacency Matrix

The following table sets out the key relationships between the distinct departments within the Facilities:

Key

Ess: Essential relationship, i.e. areas shall be immediately adjacent

Des: Desirable relationship, i.e. areas shall be easy accessible from each other

N/A: Non-essential relationship

	<i>[Department Name 1]</i>	<i>[Department Name 2]</i>	<i>[Department Name 3]</i>	<i>[Department Name 4]</i>	<i>[Department Name 5]</i>	<i>[Department Name 6]</i>	<i>[Department Name 7]</i>	<i>[Department Name 8]</i>
<i>[Department Name 1]</i>								
<i>[Department Name 2]</i>								
<i>[Department Name 3]</i>								
<i>[Department Name 4]</i>								
<i>[Department Name 5]</i>								
<i>[Department Name 6]</i>								
<i>[Department Name 7]</i>								
<i>[Department Name 8]</i>								

Appendix B. [Department Name]

[An Authority to complete a copy of this appendix for each department listed in Appendix A]

Sub Section E – SOFT FM SPECIFIC REQUIREMENTS

1 Scope of Service

1.1 Scope of Service

The [Service Title] will be provided by the Authority [365(6) days a year] on a scheduled and reactive basis.

The [Service Title] will deliver *[include high level statement of the aims of the service]*

[High level statement on the management of the service including the location of any supervisory element]

[Include a high level bullet list of the service delivery elements. For example a cleaning service might set out the following service to all areas of the facility in order to maintain the specified standards, including:

[Routine and scheduled cleaning];

[Programmed cleaning];

[Ad-hoc / reactive requests];

[Increased cleaning of touch surfaces and sanitary areas at the request of the [Control of Infection Team]];

[The monitoring and reporting of cleanliness];

[Recording of fridge temperature]; and

[Documentation associated with the service]

1.2 Specific Exclusions

The following services are excluded from the [Service Title] remit:

[include any specific exclusions that the service might provide, this could include elements such as Sub-hubCo undertaking builders cleans]

2 Activity Indicators

[This should include a high level statement on the frequency of tasks that the service undertakes, including where this is linked to national or Authority standards]

2.1 Activity Level Projections

The table below sets out the anticipated level of activity of the [Service Title]:

Type of Activity	Anticipated Volume / Frequency
<i>[Activity description]</i>	<i>[Frequency per day/week]</i>

2.2 Operating Hours

The [Service Title] will operate *[insert number of days]* days a week, [including Bank Holidays *(delete as applicable)*]. It will be provided at times to minimise disruption to operational wards, departments and public areas. The operational hours of the [Service Title] may vary however it is anticipated that core hours will be approximately between [xx.xx] and [xx.xx] hrs.

2.3 Service Trends

The Facilities shall be designed to be capable of accommodating future developments as follows:

[Insert any known potential changes in the way the service will operate that might impact the design of the building e.g. moving to disposable items or moving from disposable items such that more or less storage is required]

3 Key Operational Processes

3.1 Overview

There will be a relationship between the [Service Title] and the:

[list all other services (with Sub-section E documents) that this service interacts with and might have requirements linked to this service]

3.2 Operational Processes

The [Service Title]s team will follow the processes detailed in *[Authority Operational Manual, National Standards, Industry guidance etc.]*.

[Sub-headings in the section should align with the headings for 2.1 Activity Level Projections]

3.2.1 [Activity 1]

[Insert description of duties undertaken within this category. This should detail staffing resource, transportation method and interaction with spatial requirements to allow Sub-hubCo to understand why rooms will be required and how they will be used]

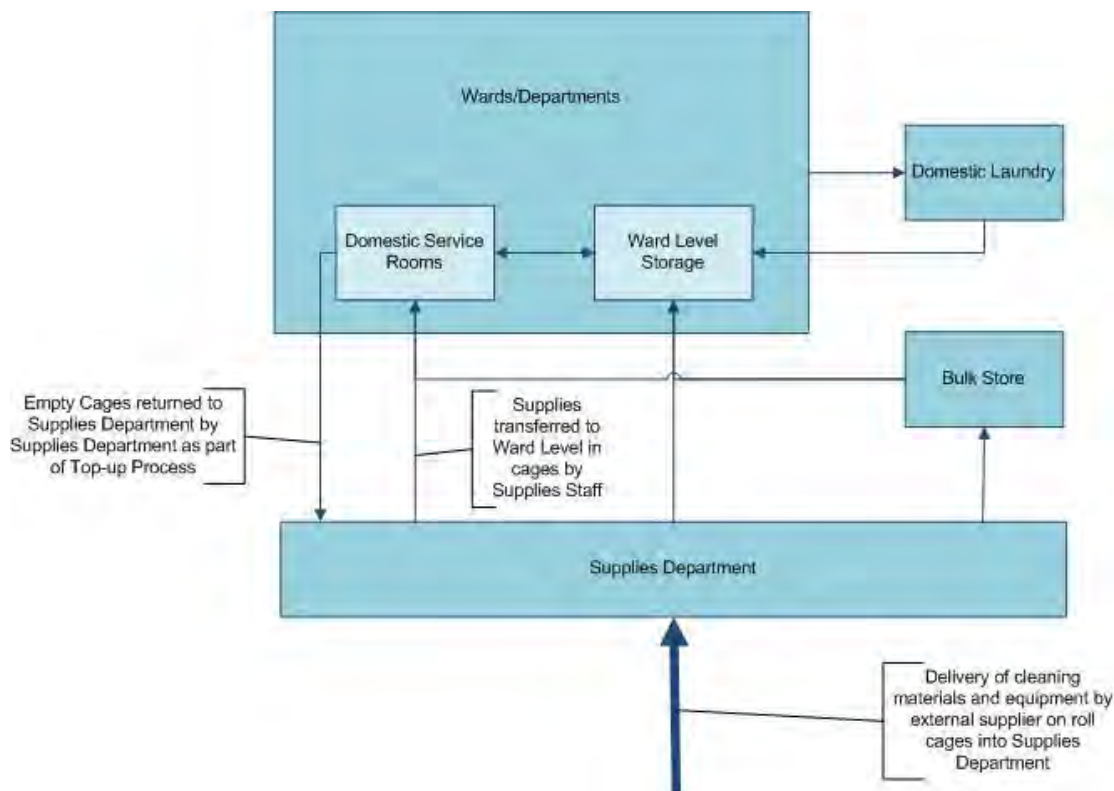
3.2.2 [Activity 2]

[Insert description of duties undertaken within this category. This should detail staffing resource, transportation method and interaction with spatial requirements to allow Sub-hubCo to understand why rooms will be required and how they will be used]

3.3 Process Flow Diagram

[Insert process diagram that shows the routes associated with the workstream via each of the spaces specified in Section 4.2 below. This should include all aspects including the delivery of the service and delivery of consumables and supplies and the removal of any waste or returnable items. This should be annotated to indicate methods of transportation e.g. trolleys, cages etc and any return flows such as cleaned receptacles].

[Indicative example diagram]



4 Key Facilities Requirements

4.1 General Requirements

Sub-hubCo shall provide accommodation to allow the Authority to carry out the service. The minimum requirements are defined in this Specification, [the Schedules of Accommodation, Room Data Sheets (*delete as applicable*)].

The Facilities shall be designed to allow the [Service Title] to operate in accordance with [Sector Specific Bodies e.g. NHS Scotland or COSLA], Authority Operational Policies, government legislation and Good Industry Practice.

Sub-hubCo shall also comply with the requirements with regard to the durability of / ability to clean finishes, the protection of walls, fixtures and fittings and the general design of circulation routes.

4.2 Accommodation Requirements

[The level of detail included in this section will be dependent on the level of detail and preparation of a number of other technical Schedules. As a minimum for each room type required a brief description of the purpose of the room and any specific functional requirements should be provided. Additional information may need to be added depending on the content and availability of other documents as follows:

Schedule of Accommodation, if no schedule of accommodation is available then indicative spatial requirements should be provided for each room type associated with the service to be included within the Facility and an indication of the quantity of same within each department within the Facility. If a Schedule of Accommodation is available this should be referenced and no spatial information included here;

Room Data Sheets, if no Room Data Sheets have been developed then indicative lists of contents and equipment should be included for each room type associated with the service to be included within the Facility. Where specific rooms require a slightly different equipment inclusion from standard then this should also be noted here. If Room Data Sheets are available these should be referenced and no contents and equipment information included here.]

Sub-hubCo shall provide the accommodation requirements listed in the following table. The requirements are described in more detail below.

Room Name	Number of Rooms Required
[Room Name]	[[x] per department]
[Offices]	[[x] person office]
	[[x] person office]
	[[x] person office]
[Equipment Store]	[x]
[Bulk Store]	[x]
[Archive Store]	[x]

The [Service Title] will also require access to the following accommodation, the requirements for which are described elsewhere, as noted:

The [Service Title] will also require access to the following accommodation, the requirements for which are described elsewhere, as noted:

[List any areas described in other parts of Sub Section E to avoid duplication of spaces]

[Sub-headings in the section should align with the room names in the table above]

4.2.1 [Room Name]

Each [Room Name] should *[this should set out a description of what the room should allow for including what is to be accommodated, what storage is required and its use and access requirements]*.

4.2.2 [Office]

The office accommodation should be suitable to accommodate the specified number of occupants with workstations and storage provided.

The offices should be lockable

4.2.3 [Equipment Store]

This store should be suitable for the storage of equipment associated with the [Service Title] with appropriate finishes. The room should be secure *[any specific security requirement should align with Chapter 8 Security of Schedule Part 6, Section 3 Authority Construction Requirements, Sub-section C General Requirements]*. *[The doors should be double opening to allow access for large pieces of equipment]*.

4.2.4 [Bulk Store]

This store should allow access to and storage of consumables used in the provision of the service. With suitable access and egress for equipment and staff. This store should be secure *any specific security requirement should align with Chapter 8 Security of Schedule Part 6, Section 3 Authority Construction Requirements, Sub-section C General Requirements]*.

4.2.5 [Archive Store]

This store should allow access to and storage of records associated with the provision of the service, suitable storage systems should be provided to allow this. With suitable access and egress for equipment and staff. This store should be secure *[any specific security requirement should align with Chapter 8 Security of Schedule Part 6, Section 3 Authority Construction Requirements, Sub-section C General Requirements]*.

5 Key Departmental Relationships

5.1 General Requirements

The Facilities shall be designed to allow staff to reach their destination as easily and directly as possible, with minimal routes through public areas, and minimal routes through other clinical areas.

The [Service Title] will require access to all areas of the Facility.

5.2 Relationships within Department

[The matrix below should be adjusted to take account of all room types specified in Section 4.2 above stating whether an adjacency is Essential, Desirable or Non-essential] This section can be removed if the spaces are included in a larger Facility wide adjacency matrix. If this is the case the matrix document should be referenced here.]

The facilities shall be designed with the appropriate adjacencies to [List any other services] and access to [list any specific areas that might be detailed in Schedule Part 6, Section 3 Authority Construction Requirements, Sub-section D Specific Non-Clinical/Non-Educational Requirements].

The following table sets out the key relationships between the distinct areas within the department:

Key

Ess: Essential relationship, i.e. areas shall be immediately adjacent

Des: Desirable relationship, i.e. areas shall be easy accessible from each other

N/A: Non-essential relationship

	[Room Name]	[x Person Office]	[x Person Office]	[x Person Office]	[Equipment Store]	[Bulk Store]	[Archive Store]	[Any rooms/spaces that are detailed in other Sub Section E documents that require to be factored in]
[Room Name]								
[x Person Office]								
[x Person Office]								
[x Person Office]								
[Equipment Store]								
[Bulk Store]								
[Archive Store]								
[Any rooms/spaces that are detailed in other Sub Section E documents that require to be factored in]								

6 Environmental and Building Services Requirements

6.1 General Requirements

Sub-hubCo shall provide building services to allow Authority to carry out the [Service Title].

The minimum environmental and services requirements are defined in this Specification, [the Environmental Matrix and Room Data Sheets (*delete as applicable*)].

6.2 Specific Room Requirements

[As required for each room detailed in 4.2 Accommodation Requirements, this should set out any specific requirements such as high level power sockets, or a need for banks of sockets rather than sockets being spaced around the room, or highlight any specific temperature issues that might have been identified in the past]

APPENDIX C - DBFM TEMPLATE CONTRACT SUMMARY

This ACR guidance note supports the development of Schedule Part 6 section 3 (highlighted in yellow) which forms part of the Standard form DBFM contract as set out in the contents list below. Links for each section of the DBFM contract and associated SFT guidance can be found below within the contents table:-

- [Template DBFM User Guide](#)

Schedule	Description	Contract Link	SFT Guidance	Guidance/Notes
Part 1	Definitions & Interpretation	Part 1	-	
Part 2	Completion Documents	Part 2	-	
Part 3	Key Works Personnel	Part 3	-	
Part 4	Funders Direct Agreement	Part 4	-	
Part 5	Land Matters	Part 5	-	
Part 6	Construction Matters	-	SFT Guidance Note	Creation of the Project Brief and the Authority Construction Requirements
6/Section 1	Planning & Consents	-	-	
6/Section 2	Safety During Construction	Part 6/2	-	
6/Section 3	ACR's	-	-	As per included Guidance Note
6/Section 4	Hubco Proposals	-	-	
6/Section 5	Reviewable Design Data	-	-	
6/Section 6	Room Data Sheets	-	-	
6/Section 7	Thermal & Energy Efficiency Testing	-	SFT Guide	SFT Template section 7
6/Section 8	Quality Plans	-	-	
6/Section 9	Const Phase Change Protocol	-	-	
Part 7	The Programme	-	-	
Part 8	Review Procedures	Part 8		
Part 9	Collateral Agreements	Part 9		
9/Section 1	Contractors Collateral Warranty	Part 9/1		
9/Section 2	Service Provider Collateral Agreement	Part 9/2		
9/Section 3	Sub-Contractor Collateral Agreements	Part 9/3		
Part 10	Outline Commissioning Programme	-	SFT Guidance Note	Schedule Part 10
Part 12	Service Requirements			
12/ Section 1	Service Level Specification		SFT Guidance Note	Service Level Specification
12/ Section 2	Method Statements	-	-	

Schedule	Description	Contract Link	SFT Guidance	Guidance/Notes
12/ Section 3	Services Quality Plan	-	-	
Part 13	Independent Tester Contract	Part 13	-	
Part 14	Payment Mechanism	Part 14	SFT Guidance Note	Payment Mechanism Calibration Model
14/ Section 1	Interpretation	-		
14/ Section 2	Calculation Of Service Payment	Part 14/2		
14/ Section 3	Ddts For Monthly Service Payments	Part 14/3		
14/ Section 4	Temporary Repairs	Part 14/4		
14/ Section 5	Failure By Sub-Hubco To Report	Part 14/5		
14/ Section 6	Pass Through Costs	Part 14/6		
Part 15	Insurance Requirements	-		
15/ Section 1	Policy by Sub-Hubco Construction	Part 15/1		
15/ Section 2	Policy by Sub-Hubco Ops	Part 15/2		
15/ Section 3	Endorsements	Part 15/3		
15/ Section 4	Insurance Arrangements	Part 15/4		
15/ Section 5	Brokers Letter Of Undertaking	Part 15/5		
Part 16	Change Protocol	Part 16		
16/ Section 1	Definitions	Part 16/1		
16/ Section 2	Low Value Changes	Part 16/2		
16/ Section 3	Medium Value Changes	Part 16/3		
16/ Section 4	High Value Changes	Part 16/4		
16/ Section 5	Sub-Hubco Changes	Part 16/5		
16/ Section 6	Changing The Financial Model	Part 16/6		
Part 17	Compensation on Termination	Part 17		
Part 18	Handback Procedures	Part 18		
Part 19	Record Provision	Part 19		
Part 20	Dispute resolution procedures	Part 20		
Part 21	Sub Hubco Information	Part 21	SFT Guidance Note	Guidance on Local Authority Capital Contributions into hub DBFM Projects
Part 22	Certificates	Part 22		
Part 23	Refinancing	Part 23		
Part 24	Employment & Pensions	Part 24		
Part 25	Insurance Proceeds Account Agreement	Part 25		
Part 26	Commercially Sensitive Information	Part 26		