NHS Scotland Assure
Quality in the healthcare environment

NHS National Services Scotland

# Key Stage Assurance Review Workbook

## Outline Business Case

June 2021

Version 1.0

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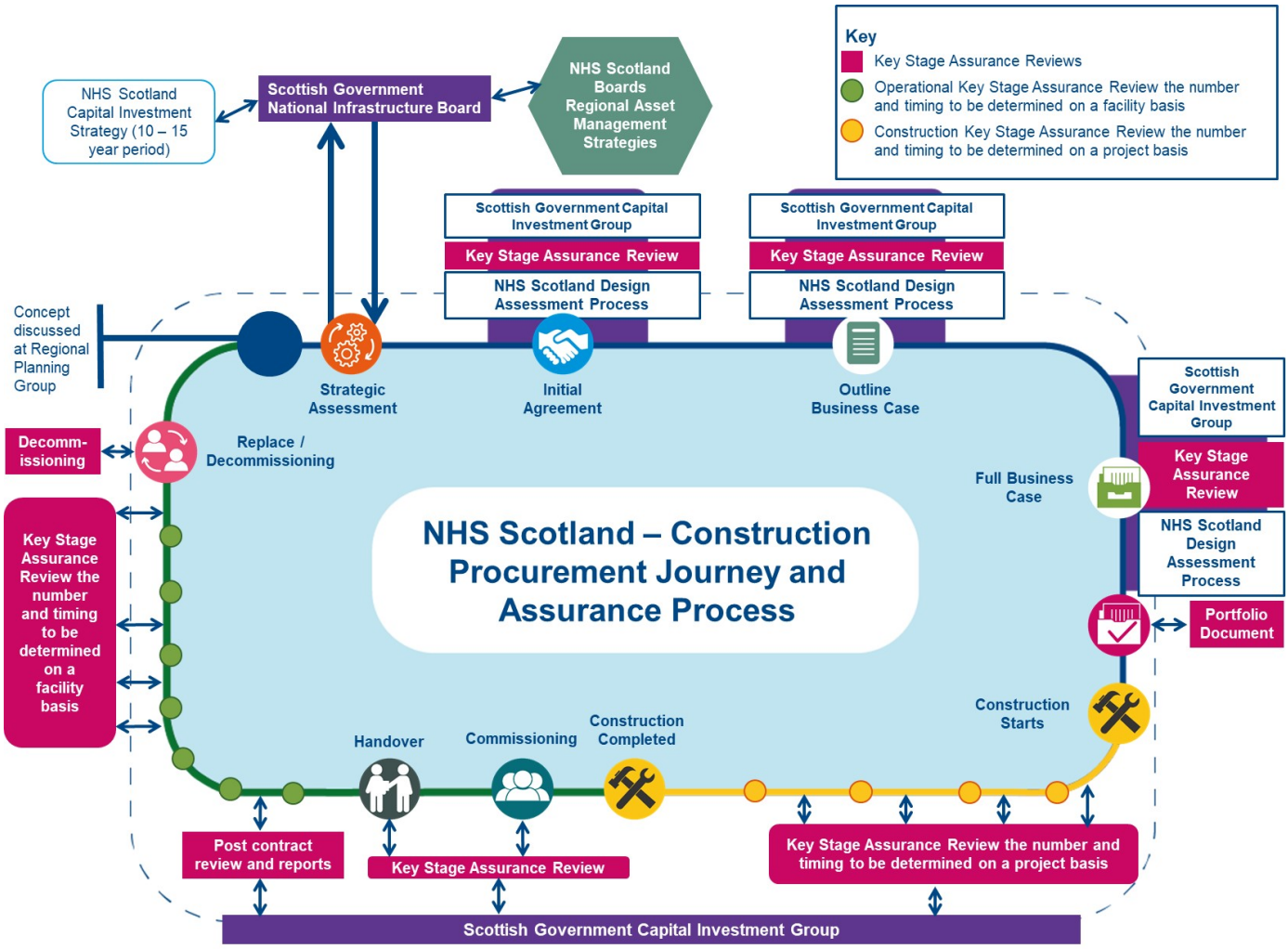
# 1. About this workbook

This workbook supports the Outline Business Case Key Stage Assurance Review (KSAR), delivered through the NHS Scotland Assure - Assurance Service.

Further information about the NHS Scotland Assure - Assurance Service and KSAR process is provided in section 2.

Figure 1. shows how the Outline Business Case stage in the procurement and construction journey commences following Initial Assessment. The timing and frequency of KSARs during this stage will vary dependent upon the facility. Specific workbooks have been developed for the other stages within this journey.

## Figure 1: Construction Procurement Journey




KSARs are of a process ensuring facilities and the teams using them are able to deliver the standards required to provide the best and safest outcomes for patients, staff and visitors in the built environment.

KSARs deliver an independent peer review. NSS staff outside the project use their experience and expertise to examine the progress and likelihood of successful delivery, with a particular emphasis on the safety of the patients, staff and visitors using the facility.

It is vital to receive feedback on the following elements of health facilities - Infection Prevention and Control (IPC), water, ventilation, electrical, plumbing, medical gases

installations and fire. This ensures they are designed, installed and functioning from initial commissioning of a new facility and throughout its lifetime. Health Boards are required to have appropriate governance  in place at all stages of the construction procurement journey.

The KSAR workbook provides a transparent, structured framework for all clinical specialisms, facilities and operational management professionals to assess and manage a health care build or refurbishment. Allowing facilities to align with current standards as the assurance reviews are taking place, as well as aligning changes for patient cohort.

## Using this workbook

The review at Outline Business Case stage investigates the approach taken by the Health Board in the development of the design, and how the appropriate level of knowledge and awareness of patient and user needs will influence the development of the design.

The purpose of the KSAR at Outline Business Case stage is to confirm there is a good and comprehensive understanding of the category of patient who will use the proposed facility and that the project team consider how appropriate quality and safety standards will influence the design. It looks to provide assurance that the project can proceed to the Full Business Case.

This workbook is predominantly intended to be used by NHS Scotland Assure KSAR review teams, Health Boards are encouraged to use its content to support their own projects. It provides guidance on the review structure and areas of investigation to be addressed by the review team and should be regarded as indicative and not prescriptive.

The review team will consider whether any emerging findings require additional topics to be addressed. If so, evidence relating to these areas, regarding the safety of the patients, staff and visitors should be provided.

# 2. Key Stage Assurance Review

## Introduction to NHS Scotland Assure – Assurance Service

Good management effective control of projects is an essential element to the successful delivery and maintenance of healthcare facilities across NHS Scotland estates.

The initial delivery of the NHS Scotland Assure - Assurance Service will focus upon new builds and major refurbishments in the acute estate, submitted to the Scottish Government Capital Investment Group (CIG). In addition, a number of projects identified as being complex, primarily due to the needs of patients utilising the facilities, will be reviewed by this service. Whilst not an exhaustive list, these projects will cover oncology, maternity, theatre and critical care units, no matter of their financial value.

The NHS Scotland Assure - Assurance Service will deliver KSARs, designed to provide independent assurance to Scottish Government Health and Social Care Directorates (SGHSCD's).

It will assess if Health Boards Project Management teams (inclusive of clinicians, appointed construction consultants, and contractors) are briefed and following best practice procedures in the provision of facilities. We will review if projects are compliant in all aspects of safety, if specific engineering systems are designed, installed and commissioned, and for ongoing safety maintenance including IPC.

The KSAR process is applicable regardless of procurement route chosen.

## The KSAR Process

The KSAR process examines projects at key points in their lifecycle. It does not remove any legal or contractual obligations from the NHS Health Board, their designers or contractors. It provides assurance to progress successfully to the next review point and the process will be mandated for projects requiring CIG approval. KSARs focus on the assessment of the delivery approach, and will work with the Health Board's project team to ensure there is comprehensive understanding of the patient cohorts utilising the facility. KSARs also ensure relevant guidance is fully implemented and any technical derogations have been fully reasoned, transparently discussed, the implications understood, recorded and signed off by the Health Board and their advisors.

With a focus on construction elements where previous reviews have demonstrated potential patient safety concerns, KSARs will concentrate on water; ventilation, electrical, plumbing, medical gases installations, fire, and associated IPC guidance. If further issues are raised with the review team, they will fully incorporate those issues into the reporting process.

## Value of the KSAR Process

Key Stage Assurance Reviews (KSARs) deliver an independent peer review. NSS staff outside the Health Board's project use their experience and expertise to examine the progress and likelihood of successful delivery, with a particular emphasis on the safety of the patients, staff and visitors using the facility. KSARs provide an external perspective and provide a challenge to the robustness of the Health Board's brief, plans and processes.

This includes work delivered by construction consultants, employed either directly or through construction contractors, and the work being delivered by the primary contractor, their sub-contractors and specialist suppliers.

The KSAR provides an independent report and action plan, which is shared with the Health Board to ensure:

- Appropriate skills and experience are deployed on the project by the Health Board, consultants, primary contractor and all sub-contractors.
- The clinicians and wider stakeholders covered by the project fully understand the project status, aims and the issues involved.
- Appropriate management structures put in place to ensure appropriate infection prevention and control measures are designed into the project to reduce the risk of transmission of infectious agent.
- There is assurance the project can progress to the next stage of development or implementation with particular emphasis on the safety of the patients, staff and visitors utilising the facility.
- Provision of advice and guidance to programme and project teams by fellow Practitioners.

The KSAR report and the Health Board's response and action plan is submitted to CIG along with a recommendation from the NHS Scotland Assure - Assurance Service regarding the projects' progression to the next stage of the construction procurement journey.

## KSAR as part of the overall assurance framework

Each NHS Health Board will be fully responsible for the delivery of all projects, and its own internal process and resources for carrying out internal reviews and audits of its activities. The KSAR is seen as a complementary independent review, and not as a replacement for the responsibilities of the Health Board.

NHS Health Boards should have in place an effective framework to provide a suitable level of assurance for their programmes and projects. Health Boards are encouraged and expected to ensure adequate and timely coordination and sharing of information, including plans, between the various internal reviews and functions.

The KSAR process is not a substitute for a rigorous governance framework in the Board to manage key processes including business planning, investment appraisal, business case management, risk management and service and contract management.

## The KSAR Process relationship with NHS Scotland Design Assessment Process (NDAP)

The Scottish Government's ambition for NHS Scotland's estate and the need for well-designed healthcare environments is articulated in the Policy on Design Quality for NHS Scotland. Good design in the built environment encompasses a wide range of inter-related factors such as, sustainability, engineering, architecture, fire safety, energy, environment, decontamination, space utilisation, landscaping, security, technology, lighting, access for visitors and mobility impaired persons.

The NDAP process is overseen by Health Facilities Scotland and Architecture and Design Scotland and holistically considers all of the above. It sets the principles for the resolution of potential conflicts of statutory or mandatory compliance to ensure the specific facility provides; the best balance of the technical requirements, meets clinical needs and fulfils the conceptual aims of the policy on Design Quality. The NDAP process begins at the initial agreement stage of a project and provides advice through to the Full Business Case. There is no change to either SCIM or NDAP processes.

The Scottish Government is progressing policy to improve the safety of the healthcare environment in relation to the built environment risk. The Assurance Service delivered through NHS Scotland Assure is a response to this policy and the KSARs are integral to the compliance work. The aspiration is not to duplicate any of the work included in the NDAP process, but to provide assurance regarding the critical components highlighted throughout this workbook.

Integral to the KSARs will be a review of the balance between sustainability issues and patient safety.

The NDAP, working with Health Boards, will set the principles of the design solution, whereas the KSAR will provide a detailed technical review of the specifics of the design solution. Where possible the two reviews will be aligned to avoid duplication of work. For example, in instances where the NDAP has reviewed detail at a technical level, this will be used by the KSAR team rather than being separately requested and reviewed.

## Sustainability

The review will provide assurance that the proposals for the project provide an effective balance in terms of patient, staff and visitors safety, whilst meeting required sustainability outcomes and complying with the guidance standards.

## Outline Business Case (OBC) KSAR

This review investigates the approach taken by the Health Board in the development of the design, to confirm that there is a good and comprehensive understanding of the category of patient utilising the proposed facility, and that the project team are aware of how their needs and expectations for appropriate quality and safety standards will influence the design of the accommodation. It looks to provide assurance that the project can proceed to the Full Business Case.

The OBC KSAR will focus on how this understanding of patient needs and expectations have influenced the following critical components of design, particularly in relation to Infection Prevention and Control.

- Water systems
- Ventilation systems
- Plumbing and drainage
- Fire safety
- Electrical systems
- Medical gases
- Any other building or engineering component critical to the safety and welfare of a particular patient cohort (defined by the review team).

At all stages of design development, knowledge of compliance in design and implementation will need to encompass (not limited to) the following:

- NHS Scotland policy letters (DLs,CELs,CMOs)
- Scottish Health Planning Notes (SHPN)
- Scottish Health Facilities Notes (SHFN)
- Scottish Health Technical Memoranda (SHTM)
- Scottish Fire Practice Notes (SFPN)
- Health Building Notes (HBN)
- Health Technical Memoranda (HTM)
- Health Facilities Notes (HFN)
- UK construction industry bodies best practice or design guidance publications e.g. HSE, CIBSE, BRE, IHEEM, IET, BRE, BSRIA, sustainability, dementia and equality.
- Incident Reporting and Investigation Centre (IRIC) Alerts
- Relevant British Standards
- Other statutory requirements: Planning permission; Building Regulations compliance; Equality Act compliance; Health and Safety Executive (HSE) compliance; Construction (Design and Management) Regulations compliance; Fire Scotland Act.
- Other mandatory NHS Scotland use of:
  - Activity Data Base (ADB);
  - Achieving Excellence Design Evaluation Tool;
  - BREEAM Healthcare or equivalent (BRE environmental & sustainability tools);
  - Scottish Government BIM Policy (SPPN 1/2017; implementation of building information modelling within construction projects: March 2017);
  - The implementation of NHS Scotland Soft Landings (SL) guidance
- Confirm there are plans in place for risk management, issue management and these plans are being shared with suppliers and delivery partners.
- Evaluation of actions taken to implement recommendations made in earlier assessment of deliverability.
- Confirm there are plans in place to ensure the requirements of the NHS Scotland National Infection Prevention and Control Manual for Scotland are being incorporated which will allow the staff allocated to the role to deliver the services to the patients.

The review teams consist of experienced operational estates professionals and experienced Infection Control clinicians. The team will work with the Health Board's Project Team, inclusive of their clinicians and their appointed facility management consultants and contractor. Each review will result in a report being prepared for the Programme Director at the Board and a copy of the report will also be provided to Scottish Government Capital Investment Group

An appendix is provided which indicates the typical question set for OBC which the review Team will use as the basis of evidence finding for the KSAR. The review team will amend this as necessary depending on the project and areas of particular interest. The Health Board, their designers and contractors should be aware that this is the information which will be expected and the design should effectively be completed at OBC at the time of the KSAR to ensure the accuracy of the report.

# 3. Assessment of Delivery Approach

The review at Outline Business Case stage will need to demonstrate an awareness and knowledge of how the above will be used to influence the initial design.

## Project Governance and General Arrangements

| No. | Areas to probe | Evidence expected |
|---|---|---|
| 1.1 | Evaluation of changes detailed from previous KSAR. | • Assessment of any substantive changes in highlighted areas from previous review stage and all actions have been implemented. |
| 1.2 | Verification that CIG recommendations have been implemented with respect to prescribed in scope areas. | • Review of the implementation of all CIG recommendations. Evaluation of any deviation from previous submissions or reviews. |
| 1.3 | Has cross-referencing with NDAP and AEDET recommendations been implemented? | • An assessment if there is full compliance with the applicable recommendations and actions from the preceding step. |
| 1.4 | Does the Health Board continue to demonstrate service / clinical input into design decisions based on a current and comprehensive knowledge of patient cohorts? | • Recorded and updated input taken from service lead(s) / clinician(s) about relevant patient cohort characteristics and their typical needs in terms of the accommodation's environment, safety and infection control standards.<br>• Demonstrable expertise of service lead(s) / clinician(s) in providing this advice. |
| 1.5 | Project team demonstrates a unified and recorded understanding of needs of main users and patient cohorts of the proposed accommodation and how this will influence the design of critical building, engineering and infection prevention and control quality and safety standards. | • Updated and current list available of all stakeholders, service users and patient cohorts impacted by this project, plus the identification of any high risk groups and their specialist needs.<br>• Updated and recorded engagement on these designs issues having taken place between the project team and service lead(s) / clinician(s), infection control team, and other key stakeholders (e.g. Estates, Medical |

| No. | Areas to probe | Evidence expected |
|---|---|---|
| | | Physics, IPC, the AEDET, NDAP or other design briefing workshops).<br>• Details available of how service users / patient cohort needs and their expected use of the accommodation are influencing the design brief; including critical building, engineering and infection prevention and control quality and safety standards. |
| **1.6** | Planned approach towards determining the necessary standards for this accommodation. | • Updated and current list of the relevant NHS and non-NHS guidance that is being used and adopted (see previous section of workbook OBC KSAR (Page 9) for examples of appropriate guidance).<br>• Updated and current list of all proposed derogations from NHS guidance with a detailed technical narrative on each derogation and / or list of known gaps in guidance that will need to be resolved in order to meet the needs of the patient / user cohort.<br>• Knowledge of the role of infection prevention and control and microbiologist advisors to be used throughout the design stages, and details of the resource plan in place to ensure this advice will be available. |
| **1.7** | How does the Health Board demonstrate that there is an effective infection prevention and control management structure in place and how does it relate to the development of the project? How does the Board demonstrate leadership and commitment to infection prevention and control to ensure a culture of continuous quality improvement throughout the organisation, and that there is an effective IPC structure in place and how does it relate to the design development? | • Evidence IPC and clinical teams have been integrated into all decisions regarding any derogations through the design process and are satisfied this will not impact on patient safety such as, specific sign off, supporting meeting minutes, risk assessments, risk registers relating to IPC with evidence of escalation through the agreed NHS board governance process. |

| No. | Areas to probe | Evidence expected |
|---|---|---|
| 1.8 | Integration with Authority Policies and Operation.<br><br>How does the Health Board demonstrate implementation of evidence based infection prevention and control measures? | • The Health Board can demonstrate the current version of the National Infection Prevention and Control Manual has been adopted by the organisation and all staff are aware of how and where to access this (ask staff).<br>• IPC are fully embedded in the project team and the OBC programme taking cognisance of any actual or perceived risks identified provided. |
| 1.9 | The Health Boards Infection Control Strategy | • Assessment of the Health Boards approach to all IPC related matters in relation to the development of the design, HAISCRIBE etc.<br>• IPCT annual programme of work. |
| 1.10 | The Health Boards Monitoring and Records | • Evidence that the Health Board integrating this project with wider IPC requirements within the context of the OBC. For example, evidence that the proposals for equipping incorporate IPC requirements? |
| 1.11 | Planned approach for managing the design process to ensure successful compliance with agreed and approved standards. | • The project governance arrangements and resource plan in place to ensure that the necessary decision making authority and technical expertise is available to take responsibility for and deliver the project as planned and agreed.<br>• Details of how gaps in expertise are being filled.<br>• Details of how compliance with the appropriate guidance, design brief and other standards are being agreed, signed off, monitored, reported against and if necessary escalated / adjudicated throughout the design, construction and commissioning stages.<br>• Details of how all stakeholders' interests are being agreed, signed off, monitored, reported against and if necessary escalated / adjudicated |

| No. | Areas to probe | Evidence expected |
|---|---|---|
| | | throughout the design, construction and commissioning stages. |
| 1.12 | The Health Boards approach on the procurement journey, with evidence of the plans on how the Health Board will provide assurance, particularly emphasis on the critical system identified earlier. | • Evidence on how Infection Prevention and Control are involved with the conceptual procurement approach to the design stage and future plans for project.<br>• Plans to identify any gaps in the procurement approach that may require to be addressed.<br>• Evidence on how the Infection Control procedures and management will fit with the conceptual procurement approach and initial thinking on how it will be managed.<br>• Evidence of a detailed procurement strategy report.<br>• Evidence that the Health Boards selected procurement route has gone through the Health Board's Governance channels. |
| 1.13 | The Health Boards approach on those areas of design that the procurement route has provided identification as possibly being Contractors Designed Portions (CDP's). | • Evidence that the Health Board integrating this project with wider IPC requirements within the context of the OBC. For example, evidence that the proposals for equipping incorporate IPC requirements?<br>• Evidence that the procurement of the lead designer will encompass these areas in their oversight and sign off of the complete design.<br>• Evidence that a clear demarcation of design responsibility is being developed. |
| 1.14 | Evaluation of the Health Boards commissioning plan. | • Evidence that the Health Board has recorded plans that are comprehensive and adequate to address the needs of the project and that they are fully resourced. |
| 1.15 | Evaluation of the Health Boards duty holder matrix. | • Evidence that the Health Board have a fully recorded matrix of the required roles and responsibilities and have a |

| No. | Areas to probe | Evidence expected |
|---|---|---|
| | | clear governance structure that is fully resourced together with plans in place for the implementation.<br>• Evidence that Health Boards have appropriate number of competent, qualified staff to carry out specific duties throughout the life cycle of the project e.g., IPC, Engineers, Estates staff etc. The number of competent, qualified staff will depend on the type and size of the Build Project. |

## Water and Internal Plumbing / Drainage Systems

| No. | Areas to probe | Evidence expected |
|---|---|---|
| 2.1 | Has the Health Board completed competency checks on the water and drainage consultant designers? | • Recorded evidence that the design team are experienced and have a comprehensive knowledge of the relevant design standards.<br>• Where anyone does not have a record of extensive health care experience what recorded plans are to be put in place by the Consultant Designers?<br>• Recorded evidence that input from the Health Boards Authorising Engineer for Water (AE(W)) has been requested. |
| 2.2 | How does the Health Board ensure that water services are designed in a fashion which will retain space for minor additions and modifications to services in the future? | • Evidence that the engineers are presented their co-ordination drawings (BIM model), with space for future flexibility identified, to the Board.<br>• Evidence that the design consultant has considered and agreed with the Board, space for future flexibility in the service installations.<br>• Evidence that the designers have presented each of the main service runs plus plant rooms to the Board's FM team, to highlight space for future flexibility.<br>• Evidence that the Health Board has agreed a strategy (percentage) for spare capacity and a documented allowance to be incorporated into the design.<br>• Are plant/tank rooms, IPS sections, horizontal distribution runs and risers appropriately sized for the equipment being installed and facilitate safe adequate maintenance. |

| No. | Areas to probe | Evidence expected |
|---|---|---|
| 2.3 | How does the Health Board assure itself that all variations / derogations which may be required to water systems are investigated and agreed by all parties before they are incorporated in the design? | • Evidence that the each variation / derogation has a detailed technical analysis and has been referred to the Board and agreed with their water management group, clinical, Estates, infection prevention and control and FM teams. |
| 2.4 | Water Management Strategy | • Assessment of Health Board proposed water management strategy and how this relates to the proposed specification, guidance and project requirements<br>• What involvement has there been from the water management group? |
| 2.5 | Water Governance Arrangements | • Has the Health Board commenced its water governance planning and recorded how it will ensure appropriate numbers of trained staff (AP and CP) and AE(W) will be appointed, is there an established project water management group that ensures the water management strategy is adhered to for the Board, and is it clear how this project will interface with this existing group?<br>• Evidence that the Health Boards AE(W) have been involved with and reviewed the design proposals to date. |

## Ventilation

| No. | Areas to probe | Evidence expected |
|---|---|---|
| 3.1 | Has the Health Board completed competency checks on the ventilation consultant designers? | • Recorded evidence that the design team are experienced and have a comprehensive knowledge of the relevant design standards.<br>• Where anyone does not have a record of extensive health care experience what recorded plans are to be put in place by the Consultant Designers?<br>• Recorded evidence that input from the Health Boards Authorising Engineer for Ventilation (AE(V)) has been requested. |
| 3.2 | How does the Health Board ensure that ventilation services are designed in a fashion which will retain space for minor additions and modifications to services in the future and there is an appropriate plant access strategy? | • Evidence that the engineers are presented their co-ordination drawings (BIM model), with space for future flexibility identified, to the Health Board.<br>• Evidence that the design consultant has considered and agreed with the Health Board, space for future flexibility in the service installations.<br>• Evidence that the designers have presented each of the main service runs plus plant rooms to the Board's FM team, to highlight space for future flexibility.<br>• Evidence that the Health Board has agreed a strategy (percentage) for spare capacity and a documented allowance to be incorporated into the design.<br>• Are plant/tank rooms, IPS sections, horizontal distribution runs and risers appropriately sized for the equipment being installed and facilitate safe adequate maintenance?<br>• Evidence that a plant access strategy for the entire ventilation system has been provided to ensure safe, adequate access, including access for cleaning. |

| No. | Areas to probe | Evidence expected |
|---|---|---|
| 3.3 | How does the Health Board assure itself that all variations / derogations which may be required to the ventilation systems are investigated and agreed by all parties before they are incorporated in the design? | • Evidence that the each variation / derogation has a detailed technical analysis and has been referred to the Board and agreed with their ventilation safety group, clinical, Estates, infection prevention and control and FM teams. |
| 3.4 | Does the Health Board have a strategy for ventilation (for rooms where this is permitted within the SHTM/SHPN guidance)? | • Evidence of environmental matrix.<br>• Evidence that the dynamic thermal modelling confirms what the design must include (e.g. structure, solar shading / protection, orientation, equipment optimisation, etc.) to ensure that room temperatures comply with SHTM guidance, in naturally ventilated rooms.<br>• Floor plans with associated plant locations highlighted plus simple schematic of strategy.<br>• This must also identify the air intake and exhaust strategy/locations. |
| 3.5 | Is there evidence of stakeholder input to ventilation strategies? | • Addition to or supplement to the Environmental Matrix which confirms the following, on a room by room basis:<br>• a) the type of ventilation (to SHTM 03-01) b) patient group and/or function related to the space.<br>• c) name of the Consultant, Clinical Lead or Department Lead who has agreed to the room requirements.<br>• d) name of the Infection Prevention and Control Doctor or equivalent who has agreed to the room requirements.<br>• e) name of the Infection Prevention and Control Nurse who has agreed to the room requirements.<br>• f) name of the Estates / FM team representative who has agreed to the room requirements.<br>• g) name of the NHS Project Manager who has agreed to the room requirements. |

| No. | Areas to probe | Evidence expected |
|---|---|---|
| | | • h) name of the Decontamination Manager who has agreed to the room requirements (where this is part of the project). |
| 3.6 | Is there evidence of the Health Board developing Ventilation Commissioning Proposals? | • Evaluation of the suitability of the proposed plans in the context of the OBC, are these sufficient do the meet the requirements of the project, guidance and the design of the system? |
| 3.7 | Has the Health Board started developing its ventilation governance arrangements? | • Is the Heath Board considering how it will ensure appropriate numbers of trained staff (AP and CP) and AE(V) for the project?<br>• Evidence that the Health Boards AE(V) have been involved with and reviewed the design proposals to date. |

## Electrical

| No. | Areas to probe | Evidence expected |
|---|---|---|
| 4.1 | Has the Health Board completed competency checks on the electrical consultant designers? | • Recorded evidence that the design team are experienced and have a comprehensive knowledge of the relevant design standards.<br>• Where anyone does not have a record of extensive health care experience what recorded plans are to be put in place by the consultant designers?<br>• Recorded evidence that input from the Health Boards Authorising Engineer for Electrical (AE(E)) has been requested. |
| 4.2 | How does the Health Board ensure that electrical services are being designed in a fashion which will provide ease of access for future maintenance and which will retain space for minor additions and modifications to services in the future? | • Evidence that the designers have presented their co-ordination drawings (BIM model) to the Board.<br>• Evidence that the designers have presented each of the main service runs plus plant rooms to the Board's FM team.<br>• Evidence that the Health Board has agreed a strategy (percentage) for spare capacity and a documented allowance to be incorporated into the design.<br>• Are sub stations, switch rooms, distribution board cupboards, horizontal distribution runs and risers appropriately sized for the equipment being installed and facilitate safe, adequate maintenance? |
| 4.3 | How does the Health Board assure itself that all variations / derogations which may be required to electrical systems are investigated and agreed by all parties before they are instigated? | • Evidence that the each variation / derogation has a detailed technical analysis and has been referred to the Health Board and agreed with their electrical safety group, clinical, Estates, infection prevention and control and FM teams. |

| No. | Areas to probe | Evidence expected |
|---|---|---|
| 4.4 | Has the Health Board assured itself of availability of adequate supply from the local utility infrastructure? | • Confirmation from the Regional Electricity Company as to how the supply will be provided from their network and if single or dual supplies are being made available. |
| 4.5 | Evidence of provisions for emergency supplies during loss of the utility incoming supply. | • Floor plans with standby generator locations highlighted plus simple schematic of strategy.<br>• Capacity of generators<br>• UPS provision |
| 4.6 | Is there a strategy for locating substations? | • Floor plans with substation locations highlighted plus simple schematic. |
| 4.7 | Is there a strategy for locating switchrooms? | • Floor plans with switchroom locations highlighted plus simple schematic |
| 4.8 | Is there a strategy for locating Medical IT distribution equipment? | • Floor plans with Medical IT board locations highlighted plus simple schematic of strategy.<br>• Compliance with BS7671 section 710<br>• Compliance with SHTM 06-01 |
| 4.9 | Is there a strategy for distribution? | • Floor plans with containment distribution routing (horizontal and vertical). |
| 4.10 | Is there evidence of the Health Board developing electrical commissioning proposals? | • Evaluation of the suitability of the proposed plans in the context of the OBC, are these sufficient do the meet the requirements of the project, guidance and the design of the system? |
| 4.11 | Has the Heath Board starting on its early thinking for the electrical governance arrangements for the operational phase? | • Is the Health Board considering how it will ensure appropriate numbers of trained staff (AP(HV), AP(LV), CP(HV), CP(LV), AE(HV) and AE(LV) for the project, inclusive of third party providers?<br>• Evidence that the Health Boards AE(E) have been involved with and reviewed the design proposals to date. |

## Medical Gases

| No. | Areas to probe | Evidence expected |
|---|---|---|
| 5.1 | Has the Health Board completed competency checks on the medical gases consultant designers? | • Recorded evidence that the design team are experienced and have a comprehensive knowledge of the relevant design standards.<br>• Where anyone does not have a record of extensive health care experience what recorded plans are to be put in place by the Consultant Designers?<br>• Recorded evidence that input from the Health Boards Authorising Engineer for Medical Gases (AE(MG)) has been requested. |
| 5.2 | How does the Health Board assure itself that all variations / derogations' which may be required to medical gas systems are being investigated and agreed by all parties before they are instigated? | • Evidence that the each variation / derogation has a detailed technical analysis and has been referred to the Board and agreed with their medical gas management group, clinical, Estates, infection prevention and control and FM teams. |
| 5.3 | How does the Health Board ensure that medical gas services are designed in a fashion which will provide ease of access for future maintenance and which will retain space for minor additions and modifications to services in the future? | • Evidence that the designers have presented their co-ordination drawings (BIM model) to the Board.<br>• Evidence that the designer has presented each of the main service runs to the Board's FM team. |
| 5.4 | Is there evidence of the Health Board developing medical gases commissioning proposals? | • Evaluation of the suitability of the proposed plans in the context of the OBC, are these sufficient do the meet the requirements of the project, guidance and the design of the system? |
| 5.5 | Has the Health Board started developing its medical gases governance arrangements for the operational phase? | • Is the Health Board considering how it will ensure appropriate numbers of trained staff (AP and CP) and AE(V) for the project? |

| No. | Areas to probe | Evidence expected |
|---|---|---|
| | | • Evidence that the Health Boards AE(MG) have been involved with and reviewed the design proposals to date. |
| 5.6 | Is there recorded evidence of a strategy for bulk gas and bottle gas storage? | • Floor plans with cylinder locations highlighted<br>• Site plan with VIE location(s)<br>• Simple schematic<br>• Confirmation that the medical gas strategy is adequate.<br>• Floor plans with pipework distribution routing and manifold locations. |
| 5.7 | Is there recorded evidence of a strategy for medical gas plant? | • Description of medical; gas requirements signed off by clinical colleagues.<br>• Floor plans with pipework distribution (horizontal and vertical) routing.<br>• Details of all medical gas plant areas ensuring safe and adequate access. |

## Fire

| No. | Areas to probe | Evidence expected |
|---|---|---|
| 6.1 | Has the Health Board completed competency checks on the Fire Engineering consultant designers? | • Recorded evidence that the design team are experienced and have a comprehensive knowledge of the relevant design standards.<br>• Where anyone does not have a record of extensive health care experience what recorded plans are to be put in place by the Consultant Designers?<br>• Recorded evidence that input from the Health Boards Fire Advisors has been requested. |
| 6.2 | Has a written fire strategy been completed and does it provide evidence, where there is a variance from statutory and mandatory guidance, that an equivalent level of safety has been achieved by alternative means? | • Is there documented evidence that fire suppression systems have been considered for life safety and property protection?<br>• Is progressive horizontal evacuation available for all patient areas that continuously moves away from the fire area?<br>• Does the design considerations of the fire and detection system provide L1 coverage including voids?<br>• Does the design provide for a compliant emergency lighting system?<br>• Are free swing arm self-closers fitted to all leafs of doors serving sleeping accommodation?<br>• Have escape lifts been considered for the evacuation of patients and others with mobility issues?<br>• Are multi sensor fire detectors installed to reduce the occurrence of unwanted fire alarm signals?<br>• Are there adequate storage facilities to ensure escape routes are not used for this purpose?<br>• Are measures in place to provide safe charging of electrical and personal electronic equipment?<br>• Have fire hazard rooms been designated based on fire load?<br>• Where there is a mechanical ventilation system - have all compartments, sub- |

| No. | Areas to probe | Evidence expected |
|---|---|---|
| | | compartments and corridors serving sleeping accommodation been designed to be fitted with fire and smoke dampers? |
| 6.3 | How does the Health Board assure itself that all variations / derogations which may be required to fire systems are investigated and agreed by all parties before they are instigated? | • Evidence that the each variation / derogation and any fire engineering proposals are being referred to the Board and agreed with their fire safety group, clinical, engineering, infection prevention and control and FM teams. |
| 6.4 | How does the Health Board assure itself that all fire dampers and fire/smoke dampers are designed to allow for inspection, resetting and maintenance? | • Evidence that the designers have presented their co-ordination drawings (BIM model) to the Board.<br>• Evidence that the designers have presented each of the fire dampers and smoke / fire dampers to the Board's FM team.<br>• Safe and adequate access has been allocated on both sides of all fire dampers for maintenance. |
| 6.5 | How does the Health Board assure itself that any fire rated ductwork is correctly installed? | • Evidence that the system is certificated and that the installation follows the installation details which were used for the certification.<br>• Written confirmation from the design consultant. |
| 6.6 | How does the Health Board assure itself that any smoke control and/or clearance systems are fit for purpose? | • Evidence that the smoke system is being designed by an accredited Fire Engineer.<br>• Evidence that Building Control are being consulted.<br>• Confirmation from the Building Services Design Consultant that the operating sequence for the smoke system has been discussed regarding being integrated into the control of other building systems. |

| No. | Areas to probe | Evidence expected |
|---|---|---|
| 6.7 | Evidence that the Health Board is ensuring fire safety input into the design process together with early design decision-making. | • Input from Fire lead(s) and HFS / SFRS on fire safety into site / option selection. Documents e.g. option appraisal report, fire strategy report, meeting minutes.<br>• Demonstrable and appropriate engagement and expertise of relevant Fire lead(s). Signed off documents, e.g. reports, role profiles, minutes.<br>• Evidence that the Health Boards Fire Advisor have been involved with and reviewed the design proposals to date. |
| 6.8 | Has the Health Board started the development of the fire system outline commissioning proposals? | • Has the Health Board designed appropriate trained staff and appointed a fire officer for the project, is there an established firer management group that will ensure the fire management strategy is adhered to? |

## IPC Built Environment

| No. | Areas to probe | Evidence expected |
|---|---|---|
| 7.1 | How does the Health Board demonstrate that there is an effective infection prevention and control management structure in place?<br><br>How does the Board demonstrate leadership and commitment to infection prevention and control to ensure a culture of continuous quality improvement throughout the organisation and that there is an effective IPC structure in place; inputting into the design process? | • The Health Board provides evidence that there is an IPC Management Structure with the necessary. expertise and leadership skills to support the design work.<br>• The Health Board provides evidence that there is an IPC Management Team with the necessary expertise and leadership skills to support the project.<br>• Executive board reports or minutes. Risk registers or equivalent, Minutes from operational and governance groups, (and action points).<br>• Structure of infection prevention and control team (IPCT) and qualifications held, previous experience supporting new build projects.<br>• Evidence IPC and clinical teams have been involved with any derogation through the design process and are satisfied this will not impact on patient safety. This can be meeting minutes, risk assessments, and risk registers. There is IPC evidence of escalation through the agreed NHS board governance process.<br>• Evidence the Executive board member assigned to lead on IPCT has been kept informed of IPC risks identified and associated with the project this can be demonstrated by the board.<br>• Evidence that fixtures fitting and equipment have not been proposed for the project that would represent an IPC risk. |
| 7.2 | How does the Health Board demonstrate implementation of evidence based infection prevention and control measures during the design process? | • The Board evidences that:<br>• The Health Board can demonstrate the current version of the National Infection Prevention and Control Manual has been adopted by the organisation and all staff are aware of how and where to access this and it is being referred to during the design process. |

| No. | Areas to probe | Evidence expected |
|---|---|---|
| | | • IPC work programme and planned IPC audit programme for new building taking cognisance of any actual or perceived risks identified. |
| 7.3 | How does the Health Board assure itself that the designers have a proper understanding of the infection prevention and control procedures and processes required? | • The Health Board evidences that:<br>• All relevant staff within the designers organisation are provided with clear guidance on roles and responsibilities in relation to infection prevention and control.<br>• The contractors organisation will provide evidence of education in relation to infection prevention in the built environment for all staff involved in the project. |
| 7.4 | How does the Health Board assure itself that equipment being proposed meets the required IPC standards? | • The IPC Team are involved and IPC advice followed in all procurement decisions for new equipment prior to purchase. IPCT are satisfied that all equipment purchased can be decontaminated safely in line with National Decontamination Guidance, NIPCM and manufacturers' instructions. |

# 4. References

## KSAR Master Glossary

Available to download from NHS National Services Scotland website.

# 5. Bibliography

***Scottish Property Advisory Group – Building Design and Construction: Report on Construction Quality Matters***
*John Donnelly, Chair BDAC*
*Dated: December 2020*