NHS Scotland Assure
Quality in the healthcare environment

NHS National Services Scotland

Key Stage Assurance Review Workbook

Commissioning

October 2022

Version V1.0

Contents

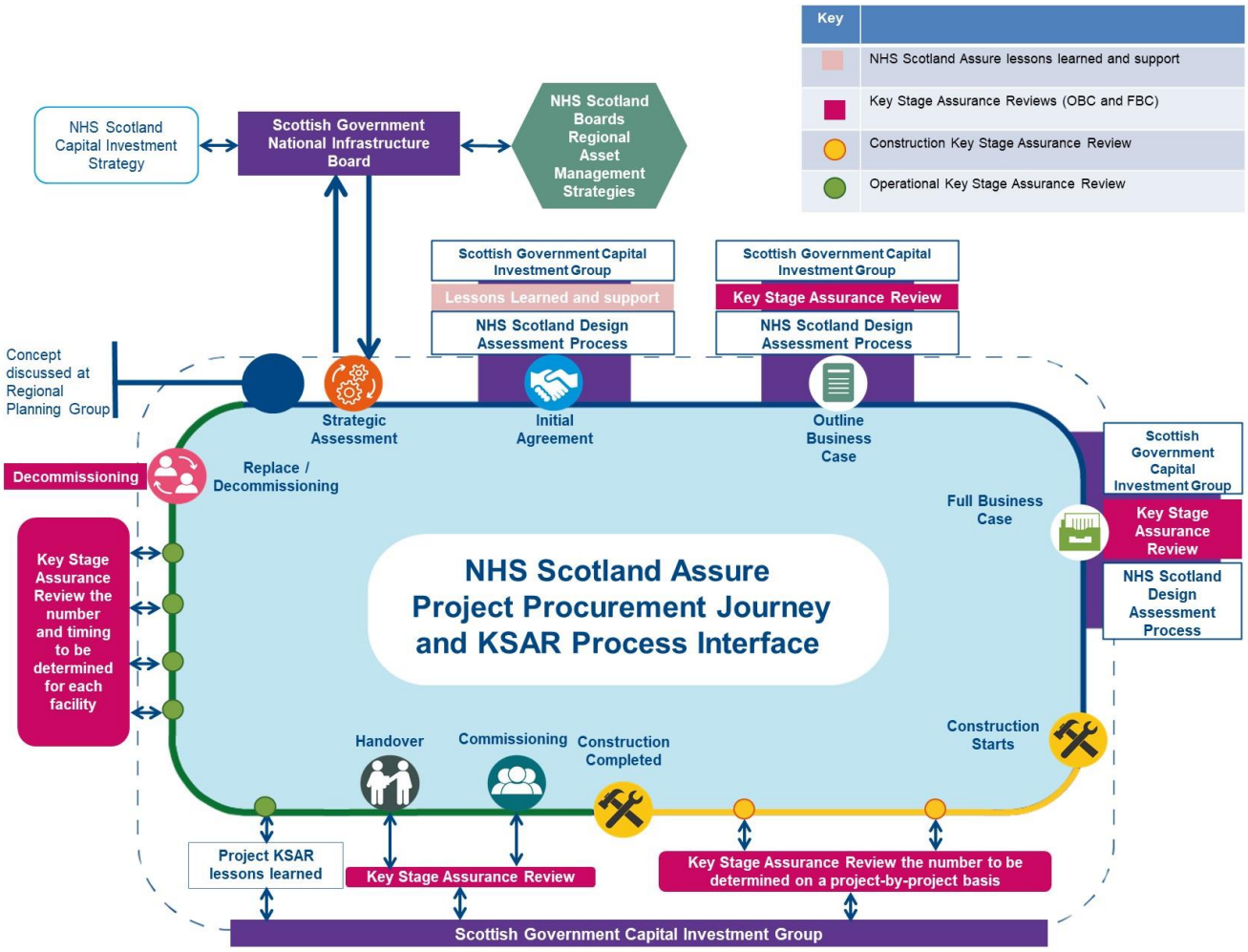
1. About this workbook

This workbook supports the Commissioning Key Stage Assurance Review (KSAR), delivered by 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 Commissioning stage in the procurement and Construction journey. 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



The KSAR process and workbooks provide a transparent, structured framework for all clinical specialisms, facilities and operational management professionals to assess and manage a healthcare build or refurbishment. In turn this assists Health Boards to provide the best and safest outcomes for patients, staff and visitors in the built environment.

KSARs deliver an independent peer review. NHS Scotland Assure 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. KSARs also focus on how projects are able to demonstrate compliance with relevant guidance and standards.

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 the 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.

Using this workbook

The review at Commissioning stage investigates the approach taken by the Health Board and other stakeholders during this critical stage of the project to ensure that there continues to be an appropriate level of knowledge and awareness of the importance of the Commissioning stage on patient, staff and visitor safety.

The purpose of the KSAR at Commissioning stage is to confirm there is a continued 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 commissioning of the various systems. It looks to provide assurance that the project can proceed to the Handover phase.

Additionally, the KSAR at Commissioning will carry out an appropriate level of checking of the Testing and Commissioning documentation. This level of checking will be set by the Review Team following their initial discussions on site.

The KSAR workbook is a tool for both NHS Scotland Assure to undertake project reviews and for Health Boards to support the development of 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 and effective control of projects are essential elements to the successful delivery and maintenance of healthcare facilities across NHS Scotland estates.

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

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. KSARs focus on the assessment of the delivery approach and the review team 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.

KSARs will concentrate on project governance related to the core review topics of 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 recommended 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 agents.
- 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.

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 being put place by the Health 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 mandated NDAP process is undertaken by NHS Scotland Assure and Architecture and Design Scotland and 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 Scottish Capital Investment Manual (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.

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.

Commissioning KSAR

The Commissioning KSAR will be an independent “peer review” in which NHS Scotland Assure (NHS SA) subject matter experts, independent of the project, use their experience and expertise to review and assess the proposed pre-Commissioning and Commissioning stage documentation and any Commissioning results available (i.e., water microbiology results). It is anticipated that the implementation of the Commissioning KSAR will differ from other reviews, as it will predominately take the form of a site-based audit of the processes and documentation associated with the Commissioning phase.

Any areas of concern found during this KSAR will be immediately raised with the NHS Health Board.

The Commissioning KSAR will consider (particularly with respect to IPC measures):

- 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).
- The requirements of the NHS Scotland National Infection Prevention and Control Manual have been incorporated and implemented to allow staff to deliver the health services in a safe and comprehensive manner.

At all stages of Commissioning phase, knowledge of compliance in design and implementation will need to encompass (but is 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 Health Technical Notes (SHTN)
- Scottish Fire Practice Notes (SFPN)
- Health Building Notes (HBN)
- Health Technical Memoranda (HTM)
- Health Facilities Notes (HFN)
- Incident Reporting and Investigation Centre (IRIC) Alerts
- Relevant British Standards

- 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
- 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;
  - The Sustainable Design and Construction Guide (SDaC) SHTN 02-01
  - 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 that there are plans in place for risk management, issue management and that 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 into the development in a manner which will allow the staff allocated to the role to deliver the services to the patients.

Additionally, the Commissioning KSAR will carry out an appropriate level of checking of the testing and commissioning results for the solutions adopted. This level of checking will be set by the review team following their initial discussions with the Health Board and other stakeholders.

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, contractor and specialist sub-contractors. The review will result in a report being prepared for the Programme Director at the Health Board and a copy of the report will also be provided to Scottish Government Capital Investment Group.

Section 3 below provides the typical question sets for each discipline that the review team will use as the basis for the Commissioning KSAR review process. The 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 typically be reviewed during the site visit. It is expected that the Construction stage should effectively be completed at the time of the Commissioning KSAR to ensure the accuracy of the report.

3. Assessment of Delivery Approach

It is anticipated that Project Commissioning may be phased as determined by the scale and complexity of the building and systems.

The KSAR will focus on governance, management, planning, resources, risk assessments, method statements, validation and Health Board acceptance of Commissioning results. Those responsible for Commissioning should have the appropriate level of competency to undertake the Commissioning of the systems which they are responsible for. All Commissioning should be carried out in accordance with the Board Contract Requirements (BCR) and appropriate industry standards.

Project Governance and General Arrangements

No.	Areas to probe	Evidence expected
1.1	How does the Health Board assure itself that actions from the previous KSAR have been closed out, and any design changes documented? How does the Health Board assure itself that any other design, strategic or project changes have been appropriately reviewed, agreed and documented?	• Evidence of a completed action plan, with reference to evidence, to demonstrate close out of actions. • Evidence of any substantive changes to the design from previous review stage. • Evidence of the change control processes in place to capture any changes to the systems and/or their design conditions. • Evidence of ongoing compliance with relevant standards and guidance, for example compliance with Firecode, updated fire strategy, updated water management plan, etc.
1.2	How does the Health Board ensure that all design activities, including Contractor Design Portions (CDPs) are concluded prior to commencement of commissioning?	• Evidence of Health Board design acceptance processes, including stakeholder review/sign-off. • Evidence of engagement with designers, including written acceptance of Contractor Design Portions. • Evidence that any derogations from standards have been agreed by the Health Board and signed-off prior to the start of the Commissioning process.

No.	Areas to probe	Evidence expected
1.3	Does the Health Board continue to demonstrate service / clinical input into design, Commissioning and Handover decisions based on a current and comprehensive knowledge of patient cohorts?	• Evidence of 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. • Demonstrable expertise of service lead(s) / clinician(s) in providing this advice. • Evidence of how service users / patient cohort needs, and their expected use of the accommodation are influencing the Commissioning brief, including critical building, engineering and infection prevention and control quality and safety standards.
1.4	How does the Health Board ensure that there is a planned approach for the implementation of the Commissioning process, to ensure compliance with the design requirements and to provide a safe environment for the patient cohorts?	• Evidence of the appointment of a specialist Commissioning company (or companies) with relevant healthcare experience and competency. • Evidence of a competence verification process by the Health Board. • Evidence that a competent independent validation organisation has been appointed by the Health Board for all disciplines covered under the KSAR. • Evidence of processes in place to deliver relevant training to those who do not have previous healthcare experience, prior to commencing work on site. • Evidence of processes for audits and ongoing reviews of the Commissioning companies. • Evidence of stakeholder input into Commissioning company selection process, including IPC / Estates / AE / AP.
1.5	How does the Health Board assure itself that the Commissioning company and all personnel included in the Commissioning process	• Evidence of competence verification process by the Health Board. • Evidence of similar, previous healthcare projects by the Commissioning company.

No.	Areas to probe	Evidence expected
	(including Commissioning managers and engineers) have the relevant competence, experience and training to carry out the commissioning of the following in a healthcare environment: • Domestic Water & Above Ground Drainage • Ventilation • Electrical Systems • Medical Gas • Fire Safety Systems/Measures How does the Health Board assure itself that experience competency and training are relevant to the healthcare environment?	• Evidence of a vetted list of site Commissioning engineers which confirms qualifications and healthcare experience. • Where specialist systems are present, evidence that individuals are competent in working with these systems (e.g., RO plant, Medical IT Power Supplies, etc). • Where anyone does not have previous healthcare experience, evidence of the specific and relevant on-site training which is provided to them before they commence work on site (for example infection control and health and safety within the healthcare-built environment). • Evidence of site management structure.
1.6	How does the Health Board ensure that there is a planned approach towards determining the necessary design and Commissioning standards for this accommodation, including compliance with local Health Board policy requirements?	• Updated and current list of the relevant NHS and non-NHS guidance that is being used and adopted (see previous section of this workbook (Page 9 and 10) for examples of appropriate guidance). • 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. • Evidence of the processes in place to ensure that personnel from the Commissioning companies have been trained in the requirements of the local Health Board policy and procedures. • Knowledge of the role of infection prevention and control advisors (IPCN and ICD) to be used throughout the Commissioning stage, and details of the resource plan in place to ensure continuity into the Handover phase.

No.	Areas to probe	Evidence expected
1.7	How does the Health Board ensure that there is a planned approach for managing the Commissioning process to ensure successful compliance with agreed and approved standards?	• Evidence of how the Health Board assures themselves that relevant stakeholders (e.g., IPC / AE / AP) are available for pre-commissioning and commissioning activities as required. • Evidence of the processes in place to demonstrate how gaps in commissioning expertise are being filled. • Details of how compliance with the appropriate guidance, design brief, Commissioning brief and other standards are being agreed, signed-off, monitored, reported against and if necessary escalated / adjudicated throughout the Construction, Commissioning and Handover stages. • Evidence of a detailed Commissioning programme encompassing all pre-Commissioning and Commissioning activities for all systems. • Evidence of a roles and responsibilities document for all individuals involved in Commissioning, including independent validators/verifiers. • Details of stakeholder engagement in the pre-commissioning and commissioning process. • Evidence that there are processes in place to allow stakeholders to review Commissioning documentation and that these are kept up to date.
1.8	How does the Health Board ensure that Commissioning results are witnessed and agreed as acceptable including independent validation where required?	• Evidence of the activities to be witnessed and by whom. • Evidence that a body, independent of the Contractor, has witnessed the results of the final Commissioning readings. • Evidence that the design consultant has signed-off that the results achieved are within the limits of deviation from design, as agreed with the Health Board / Contractor. • Evidence that the validation processes have been undertaken in line with the

No.	Areas to probe	Evidence expected
		requirements of relevant guidance, considering the additional requirements for specialist tests (e.g., UCV theatres, isolation rooms, aseptic facilities, IAP rooms, and labs etc). • Evidence of a validation report for each system detailing the findings, for review by stakeholders (Clinical head of dept. / IPC / Estates etc).
1.9	How does the Health Board ensure that the safety and performance of all commissioned systems will not be compromised in the period between Commissioning and Handover of the facility?	• Evidence of processes for undertaking risk assessments. • Evidence of roles and responsibilities. • Evidence of stakeholder review of strategies, including the local safety groups e.g., Water Safety Group, Ventilation Safety Group etc. • Evidence of consideration of PPM activities to be undertaken in the period between commissioning and handover. • Evidence of adequate/appropriate numbers of APs and CPs.
1.10	How does the Health Board ensure that all relevant information from the Commissioning phase will be collated and reviewed prior to Handover, including training records, Commissioning results and O&M information?	• Evidence of programme for completing O&M information. • Evidence of training programme for all relevant stakeholder groups, including service users, IPC, AE, AP etc. • Evidence of all factory tests and / or type test results. • Evidence that apparatus used during Testing and Commissioning has been appropriately calibrated. • Evidence of activities undertaken. • Evidence of the completed, final Commissioning records which demonstrate design conditions and actual commissioned conditions. • Evidence of final Commissioning schematics.

IPC Built Environment

No.	Areas to probe	Evidence expected
2.1	How does the Health Board assure itself that there is an effective infection prevention and control management structure in place and how does it relate to the development of the project?	• Evidence IPC and clinical teams have been integrated into all decisions regarding any derogations through the design, Construction and Commissioning processes and are satisfied this will not impact on patient safety.
2.2	How does the Health 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 Commissioning process?	• Evidence may include specific sign-off documentation, meeting minutes, risk assessments, risk registers relating to IPC, with evidence of escalation through the agreed NHS Health Board governance process.
2.3	How does the Health Board ensure that there is an effective Infection Prevention and Control strategy in place, including evidence of how evidence-based infection prevention and control measures will be implemented?	• Evidence that IPC are fully embedded in the project team and the Commissioning programme takes cognisance of any actual or perceived risks identified. • Evidence that the Health Boards approach ensures that all IPC related matters are integrated into the design, Construction and Commissioning processes, (e.g., HAI-SCRIBE etc.). • Evidence that 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.

No.	Areas to probe	Evidence expected
2.4	How does the Health Board assure itself that specialists in Infection Prevention and Control (IPC) have been fully involved in the Commissioning process?	• Evidence of the Executive Health Board reports. • Evidence of minutes and actions from Governance and Operational Groups relevant to the project, including IPC.
2.5	How does the Health Board assure itself that those IPC specialists involved in the Commissioning process are appropriately qualified and experienced?	• Evidence of the structure of the IPCT with details of qualifications held and previous experience in commissioning new builds, refurbishments or special projects. • Evidence that this has been reviewed and approved by the Health Board.
2.6	How has the Health Board ensured that the IPC specialists engaged in the Commissioning process have access to all relevant information, including the results of Commissioning tests on water and ventilation systems and any decontamination equipment?	• Evidence of a process in place for reporting the results of Commissioning tests to IPC stakeholders. • Evidence of minutes and actions from governance and operational groups relevant to the project, including IPC and Water/Venilation Safety Groups.
2.7	What are the Health Board's processes in the event that the results of any Commissioning tests are unsatisfactory?	• Evidence of processes for approving and responding to Commissioning test results.
2.8	How has the Health Board assured itself that staff in the new/refurbished unit will be able to comply with the requirements of the National Infection Prevention and Control Manual?	• Evidence of HAI-SCRIBE documentation. • Evidence of minutes and actions from governance and operational groups relevant to the project, including IPCC.

No.	Areas to probe	Evidence expected
2.9	How has the Health Board assured itself that all new equipment (for example furniture, fixtures & equipment (FF&E)) meets required standards for IPC?	• Details of IPC involvement in procurement process. • Minutes and actions from governance and operational groups relevant to the project, including IPCC.
2.10	How has the Health Board assured itself that proposed cleaning schedules will be implemented to meet the requirements of the National Cleaning Specification?	• Evidence of demarcation of responsibilities for cleaning activities, including programme of activities (e.g., “builders clean”, “sparkle clean”, “clinical clean” and any subsequent ongoing activities). • Evidence that proposed cleaning schedules have been matched against the National Cleaning Specification. • Details of facilities, clinical and IPC teams’ involvement in drawing up proposed cleaning schedules.

Water and Internal Plumbing / Drainage Systems

No.	Areas to probe	Evidence expected
3.1	How does the Health Board assure itself that the domestic water and above ground drainage systems are commissioned in accordance with local Health Board policy requirements?	• Evidence that the personnel from the Commissioning company have been trained in the requirements of the local water policy and procedures. • Evidence that the Health Board are engaging with the Water Safety Group. • Evidence that the site induction, with respect to working on domestic water services and above ground drainage systems, has been agreed with all stakeholders, including the water safety group. • Evidence that the written scheme(s) has been reviewed and updated to reflect the works and that the revised scheme is being implemented.
3.2	How does the Health Board ensure that the domestic water and above ground drainage systems are being commissioned to the correct standard and in accordance with relevant guidance?	• Evidence of a Commissioning brief in line with SHTM 04-01 Part A which confirms the processes which are to be applied (including reference to relevant British Standards and manufacturers guidelines). • Evidence of a summary and sequence of activities with named responsibilities / Inspection and Test Plans (ITP). • List of all Commissioning documentation and records that will be produced. • Evidence that there are relevant manufacturers reassurance letters, confirming that the disinfection methods proposed won't adversely affect their components (outlets and pipework) and will not impact on component warranty.
3.3	How does the Health Board ensure that the relevant stakeholders are involved in reviewing the Commissioning processes?	• Evidence that the Commissioning documents and processes as noted in 3.2 have been reviewed by all relevant stakeholders. • Evidence of a list of all stakeholders required to be involved in the Commissioning process, including pre-

No.	Areas to probe	Evidence expected
		Commissioning, mapped to each Commissioning exercise. • Evidence of the roles and responsibilities of all stakeholders involved in the process. • Evidence of the attendance of the relevant stakeholders during the Commissioning process, including pre-Commissioning. • Evidence of Action Plans, with responsibilities defined. • Evidence that there are processes in place for stakeholders to review all findings, including out of specification findings. • Evidence that IPC have been engaged during the Construction and Commissioning stages.
3.4	How does the Health Board ensure that the data used for Commissioning reflects the final design (inclusive of any changes to the design undertaken during the Construction phase)?	• Evidence of the design information, validated against the as-installed condition, to confirm the flow rates, pressures, temperatures, etc., to be used for Commissioning. • Evidence of a written agreement from the Health Board representatives to confirm that they have checked this list of the criteria before Commissioning commences. • Evidence of the change control processes in place to capture any changes to the systems and/or their design conditions. • Evidence that the final Commissioning schematics and documents have been signed-off by the design consultants.

No.	Areas to probe	Evidence expected
3.5	How does the Health Board assure itself that all pre-Commissioning inspections are completed and recorded before Commissioning can commence?	• Evidence that adequate pre-Commissioning check sheets, in line with the recommendations in SHTM 04-01 Part A, (including reference to British Standards for above ground drainage checks) have been prepared and reviewed / accepted by the Health Board prior to commencing works. • Evidence that the pre-Commissioning check sheets have been completed and signed-off by the Contractor and Health Board representatives. • Evidence of stakeholder engagement in pre-Commissioning processes (IPC / WSG / AE / AP etc.) • Evidence of ongoing review of protection measures installed in relation to above ground drainage systems, including verification that all drains were appropriately capped during Construction until final connection. • Evidence of a strategy to ensure drains flow freely and are free from any debris or obstructions (e.g., pre-Commissioning CCTV surveys).

Ventilation

No.	Areas to probe	Evidence expected
4.1	How does the Health Board assure itself that the ventilation systems are commissioned in accordance with local Health Board policy requirements?	• Evidence that the personnel from the Commissioning company have been trained in the requirements of the local ventilation policy and procedures. • Evidence that the Health Board are engaging with the Ventilation Safety Group (VSG). • Evidence that the site induction, with respect to working on ventilation and heating / chilled water systems has been agreed with all stakeholders, including the ventilation safety group.
4.2	How does the Health Board ensure that the ventilation systems are being commissioned to the correct standard and in accordance with relevant guidance?	• Evidence of a Commissioning brief in line with SHTM 03-01 Part A which confirms the processes which are to be applied (including reference to relevant British Standards, CIBSE/BSRIA guides and manufacturers guidelines). • Evidence of a summary and sequence of activities with named responsibilities / Inspection and Test Plans (ITP). • List of all Commissioning documentation and records that will be produced.
4.3	How does the Health Board ensure that the relevant representatives are involved in reviewing the Commissioning processes?	• Evidence that the Commissioning documents and processes as noted in 4.2 have been reviewed by all relevant stakeholders. • Evidence of a list of all stakeholders required to be involved in the Commissioning process, including pre-Commissioning, mapped to each Commissioning exercise. • Evidence of the roles and responsibilities of all stakeholders involved in the process. • Records of the parties who will need to support the Commissioning engineers to make those adjustments and facilitate all results to be recorded (e.g., BMS Specialists). • Evidence of the attendance of the relevant stakeholders during the

No.	Areas to probe	Evidence expected
		Commissioning process, including pre-Commissioning. • Evidence of Action Plans, with responsibilities defined. • Evidence that there are processes in place to review all commissioning documents, including out of specification findings. • Evidence that IPC have been engaged during the Construction and Commissioning stages.
4.4	How does the Health Board ensure that the data used for Commissioning reflects the final design (inclusive of any changes to the design undertaken during the Construction phase)?	• Evidence of the design information, validated against the as-installed condition, to confirm the pressure cascades, air flow rates, temperatures, etc. to be used for Commissioning. • Evidence of a written agreement from the Health Board representatives to confirm that they have checked this list of the criteria before Commissioning commences. • Evidence of the change control processes in place to capture any changes to the systems and/or their design conditions. • Evidence that the final Commissioning schematics and documents have been signed-off by the design consultants.
4.5	How does the Health Board assure itself that all pre-Commissioning inspections are completed and recorded before Commissioning can commence?	• Evidence that adequate pre-Commissioning check sheets, in line with recommendations in SHTM 03-01 Part A, (including reference to British Standards / CIBSE / BSRIA guides) checks have been prepared and reviewed / accepted by the Health Board prior to commencing works. • Evidence that the pre-Commissioning check sheets have been completed and signed-off by the Contractor and Health Board representatives.

No.	Areas to probe	Evidence expected
		• Evidence of stakeholder engagement in pre-Commissioning processes (IPC / VSG / AE / AP etc.) • Evidence that inspections by the independent validator have been carried out during and on completion of the installation of the ventilation systems, in line with the requirements of SHTM 03-01 Part A. • Evidence of air permeability tests, where applicable, in line with the requirements of SHTM 03-01 Part A. • Evidence of ongoing review of protection measures installed in relation to the ventilation systems, including verification that all ductwork, fans, air handling units, etc were appropriately protected during Construction until final connection.

Electrical

No.	Areas to probe	Evidence expected
5.1	How does the Health Board assure itself that the electrical systems are commissioned in accordance with local Health Board policy requirements?	• Evidence that the personnel from the Commissioning company have been trained in the requirements of the local electrical policy and procedures. • Evidence that the Health Board and Contractor team, including the Commissioning company, are engaging in Electrical Safety Group meetings. • Where interfaces to existing Health Board electrical systems are present, evidence that the site induction with respect to working on electrical services has been agreed with the Health Board, including confirmation of the Duty Holder. • Confirmation which safe system of work will be in force, naming the AE and AP's. • Evidence that safe systems of work have been documented and reviewed in accordance with SHTM 06-02 and 06-03.
5.2	How does the Health Board ensure that the electrical systems are being commissioned to the correct standard and in accordance with relevant guidance?	• Evidence of a detailed method statement for the electrical system Commissioning process, which confirms the national standards which are to be applied, including but not limited to process for validating instrumentation calibration, "lock off", safety/hazard/warning signage protocols and PPE requirements. • Evidence of a summary and sequence of activities with named responsibilities / Inspection and Test Plans (ITP). • List of all Commissioning documentation and records that will be produced.

No.	Areas to probe	Evidence expected
5.3	How does the Health Board ensure that the relevant stakeholders are involved in reviewing the Commissioning processes?	• Evidence that the Commissioning documents and processes as noted in 5.2 have been reviewed by all relevant stakeholders. • Evidence of a list of all stakeholders required to be involved in the Commissioning process, including pre-Commissioning, mapped to each Commissioning exercise. • Evidence of the roles and responsibilities of all stakeholders involved in the process. • Records of the parties who will need to support the Commissioning engineers to make those adjustments and facilitate all results to be recorded (e.g., electrical testers). • Evidence of the attendance of the relevant stakeholders during the Commissioning process, including pre-Commissioning. • Evidence of Action Plans, with responsibilities defined. • Evidence that there are processes in place to review all commissioning documents, including out of specification findings. • Evidence that IPC have been engagement during the Construction and Commissioning stages.
5.4	How does the Health Board ensure that the data used for Commissioning reflects the final design (inclusive of any changes to the design undertaken during the Construction phase)?	• Evidence of the design information, validated against the as-installed condition, to confirm the characteristics of the system to be used for Commissioning. • A written agreement from the Health Board representatives that they have checked this information before Commissioning commences. • Evidence of the change control processes in place to capture any changes to the systems and/or their design conditions.

No.	Areas to probe	Evidence expected
		• Evidence that the final Commissioning schematics and documents have been signed-off by the design consultants. • A copy of test results, signed by a qualified competent electrical tester and designer.
5.5	How does the Health Board assure itself that all pre-Commissioning inspections are completed and recorded before Commissioning can commence?	• Evidence that adequate pre-Commissioning checks and documentation, in line with SHTM 06-01 and BS 7671 have been prepared and reviewed / accepted by the Health Board prior to commencing works. • Evidence that the pre-Commissioning check sheets have been completed and signed-off by the Contractor and Health Board representatives. • Evidence that test schedules and "dead" test sheets relating to the installation are available, along with live testing results in accordance with BS7671. • Evidence of stakeholder engagement in pre-Commissioning processes (IPC / Electrical Safety Group / AE / AP etc.).
5.6	How does the Health Board ensure that all emergency power systems have been appropriately commissioned, tested and the results agreed as acceptable?	• Evidence of generator dynamic test results in accordance with SHTM 06-01 and manufacturers recommendations, including but not limited to: - Full load run, not less than four hours. - Start up within specified times. - Voltage regulation. • Evidence that generator synchronisation has been tested and proved: - Where multiple generators are used, confirmation of whether they share the load equally, and that this has been confirmed through site testing. - Confirmation of the start-up sequence validation. • Evidence of the validation of operational switching philosophy,

No.	Areas to probe	Evidence expected
		cause-and-effect scenarios and local operational procedures; including details of load shedding requirements to change from the distribution for power supplied from the primary electrical source and any secondary power supplies, generators or tertiary power supplies within the installation. • Evidence of the validation of changeover times in accordance with BS7671 and SHTM 06-01. • For UPS Systems: - Evidence that all UPS systems have been confirmed as no break supply and battery endurance tested. - Confirmation that the environmental conditions of the battery locations have been documented and validated as per the manufacturer's requirements.

Medical Gases

No.	Areas to probe	Evidence expected
6.1	How does the Health Board assure itself that the medical gas pipeline systems are commissioned in accordance with local Health Board policy requirements?	• Evidence that the personnel from the Commissioning company have been trained in the requirements of the local medical gas pipeline systems policy and procedures. • Evidence that the Health Board are engaging with the Medical Gas Safety Committee. • Evidence that the site induction, with respect to working on medical gas pipeline systems has been agreed with all stakeholders, including the Medical Gas Safety Committee.
6.2	How does the Health Board ensure that the medical gas pipeline systems are being commissioned to the correct standard and in accordance with relevant guidance?	• A detailed method statement of the medical gas pipeline systems Commissioning process, which confirms the national standards which are to be applied. • Evidence of a summary and sequence of activities with named responsibilities / Inspection and Test Plans (ITP). • List of all Commissioning documentation and records that will be produced, with reference to the relevant forms required by SHTM 02-01 Part A.
6.3	How does the Health Board ensure that the relevant representatives are involved in reviewing the Commissioning processes?	• Evidence that the Commissioning documents and processes as noted in 6.2 have been reviewed by all relevant stakeholders. • Evidence of a list of all stakeholders required to be involved in the Commissioning process, including pre-Commissioning, mapped to each Commissioning exercise. • Evidence of the roles and responsibilities of all stakeholders involved in the process. • Evidence of the attendance of the relevant stakeholders during the Commissioning process, including pre-Commissioning.

No.	Areas to probe	Evidence expected
		• Evidence of Action Plans, with responsibilities defined. • Evidence that IPC and NHS Health Board Pharmacists have been engaged during the Construction and Commissioning stages. • Evidence that there are processes in place to review Commissioning documentation and that these are kept up to date.
6.4	How does the Health Board ensure that the data used for Commissioning reflects the final design (inclusive of any changes to the design undertaken during the Construction phase)?	• Evidence of the design information, validated against the as-installed condition, to confirm the flow rates, pressures etc. to be used for Commissioning. • Evidence of a written agreement from the Health Board representatives that they have checked this list of the criteria before Commissioning commences. • Evidence of the change control processes in place to capture any changes to the systems and/or their design conditions. • Evidence that the final Commissioning schematics and documents have been signed-off by the design consultants.
6.5	How does the Health Board assure itself that all pre-Commissioning inspections are completed and recorded before Commissioning can commence?	• Evidence that adequate pre-Commissioning check sheets, in line with recommendations in SHTM 02-01 have been prepared and reviewed / accepted by the Health Board prior to commencing works. • Evidence that the pre-Commissioning check sheets have been completed and signed-off by the Contractor and Health Board representatives. • Evidence of stakeholder engagement in pre-Commissioning processes (IPC / MGPS Safety Committee / AE / AP etc.).

No.	Areas to probe	Evidence expected
6.6	How does the Health Board ensure that all validation is carried out on the relevant systems?	• Evidence that the validation process has been undertaken in line with the requirements of SHTM 02-01. • Records of the validation, with all readings signed-off by an agency which is independent of the Contractor.

Fire Safety

No.	Areas to probe	Evidence expected
7.1	Has the Fire Strategy been changed since the last KSAR? Has the Health Board made any design, or on-site changes, concerning active or passive fire precaution measures? How does the Health Board monitor and agree any such changes? Do any of the changes result in a variation or derogation from technical guidance?	• Evidence of Health Board change control mechanisms e.g., change control log. • Evidence of updated design information, including evidence of review and approval by Health Board specialists e.g., Local Fire Safety Advisor etc. • Evidence of reviews of the impact of any changes on statutory approvals. • Evidence that standards are achieved by alternative means. • Evidence that any changes comply with Firecode and the technical standards. • Amended and updated fire strategy.
7.2	How does the Health Board assure itself that all pre-Commissioning inspections are completed and recorded before Commissioning can commence?	• Evidence of the documented pre-Commissioning process / check sheets being used for fire safety systems, which confirms the technical standards that are to be applied. • Evidence that the pre-Commissioning check sheets have been completed and signed-off by the Contractor and Health Board representatives. • Evidence of stakeholder engagement in pre-Commissioning processes (Local Fire Safety Advisors etc.).
7.3	Have all fire safety systems been individually tested to ensure that the final installation conforms to the agreed design specification, is functioning correctly and is ready for acceptance testing? Have the fire safety systems been tested collectively to ensure that they are fully integrated and compatible with other life safety systems?	• Evidence of a detailed method statement of the fire systems Commissioning which confirms the technical standards that are to be applied. • Evidence of the Testing & Commissioning documents for all fire safety systems, including but not limited to: - Certificates of conformity, - O&M manuals - Commissioning schematics - Test records for each individual component - Testing & Commissioning certificates

No.	Areas to probe	Evidence expected
		• Fire detection & alarm system commissioned and function tested in accordance with BS 5839, including a completed 'cause and effect' ratified by the Board. • Evidence of Fire Stopping Certificates and Evidence Labels. • Evidence of a written agreement from the design consultant that they have checked the list of Commissioning criteria before Commissioning commenced. • Evidence of the Commissioning sheets which confirm all of the smoke venting performance criteria to be achieved during Commissioning. • Evidence of Action Plans which identify the adjustments (for simulation of conditions) which need to be made to systems during Commissioning to enable results to be recorded and witnessed. • Records of the parties who will need to support the Commissioning engineers to make those adjustments and facilitate all results to be recorded (e.g., BMS specialists). • Records of adjustments to the systems which were made, recorded against the relevant set of results. • Breaches in compartmentation have been repaired with evidence of conformity i.e. Fire Stopping Certificates and Labels. • Emergency lighting tested, commissioned & certified in accordance with BS5266 • Fire doors including hold open devices • Emergency door release mechanisms (green break glass units) • Fire and smoke dampers • Firefighting equipment

No.	Areas to probe	Evidence expected
		• Passenger lifts fail safe measures in the event of fire • Refuge area communication equipment • Rising mains • Fire hydrants and water pressure.
7.4	Have fire safety procedures and training been relayed to all NHS Staff and others who work within the premises prior to full occupation.	• A written Emergency fire action plan • Training records
7.5	Has the Board carried out a pre-occupation fire safety assessment*. Note* a pre-occupation fire safety assessment is not to be confused with the fire risk assessment required by fire safety legislation, which can only properly be carried out after a building has been handed over to the end user	• A written fire safety assessment and action plan
7.6	How does the Health Board ensure that the data used for Commissioning reflects the final design (inclusive of any changes to the design undertaken during the Construction phase)?	• Evidence of the design information, validated against the as-installed condition. • A written agreement from the Health Board representatives that they have checked this list of the criteria before Commissioning commences. • Evidence that the final Commissioning schematics and documents have been signed-off by the design consultants.

No.	Areas to probe	Evidence expected
7.7	How does the Board ensure that ongoing snagging works do not impact on occupant safety?	• Evidence of the snags/defects inspected and by whom. • Written evidence of safe systems of works. • Evidence of defect/snagging review and mitigation. • Evidence that remedial works are undertaken in accordance with the relevant standards and certified where applicable.

4. Appendix

KSAR Master Glossary

Please refer to NHS Scotland Assure – Assurance Service Master Glossary document.