

Theme	Lesson Area	Outcome	Recommendation
Planning of the Scheme	Early Engagement of Project Team including structured meetings	<p>Meetings were regularly held throughout the duration of the project</p> <p>Project Board was also established to help guide the project and make critical/ strategic decisions</p>	<p>Project teams may possibly be smaller but involvement from the various departments who have an input should be encouraged.</p> <p>Project Board format worked well.</p>
Planning of the Scheme	Links to the rest of the hospital development	<p>Although out with the scope of the project, efforts were made once it was apparent that budget constraints would allow this, to improve links with the other units at the development site. This however did not stretch to pavements from the main road.</p>	<p>Consideration should be given to safe pedestrian access from the main road.</p>
Planning of the scheme	Project Initiation Start Up	<p>Time was lost at the beginning of the project identifying peripheral stakeholders. Some decisions were revisited and this caused delay.</p>	<p>Prior to employing external consultants (Project Manager & Design Team), the Board should have an experienced lead officer in place to identify and establish project team membership and stakeholders input . At that point a project directory should also be set up.</p>
Planning of the scheme	Project Design Brief	<p>The scope of the project was changed due to additional funding. This caused an increase in design programme.</p>	<p>That we should try and avoid increasing scope when projects are commenced and make sure that the impact of introducing more scope is fully understood.</p>

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Business Case Process	Preparation of documentation for submission to the appropriate Group	Less time wasted on discussion at the appropriate Group and ensuing amendments for resubmission and further discussion	More certainty needed at an earlier stage to keep administration and management of the process to a minimum and remove the need for re-approval. This will not be entirely avoidable as all projects are affected by variations etc but it can be kept to a minimum if managed appropriately.

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Working with other agencies	Third party involvement in a project	Third party would be signed-up prior to project commitment and both parties would have more certainty around accommodation and financial issues.	Where third parties are involved endeavour to have a development agreement in place at an early stage

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Defining roles	Availability of appropriate staff dedicated to the specific project with the time commitment required for the lifetime of the project.	Improved communication and sign-off relating to specific elements of the design, construction and commissioning of the facility.	There should be agreement from all key players at the outset about the input required and clarity around specific roles. This would include an absolute commitment from the technical supervision element throughout the project, in particular attendance at project team meetings and at technical handover/commissioning of the building and from the relevant operational estates personnel.

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Project Management	Planning of the scheme	The in house lead officer , as part of a training and induction exercise ,was provided with external Project Management and Design assistance to deliver the project as part of small projects programme of similar scale and complexity. Difficulties with clarity over agreed roles and responsibilities between the parties adversely affected communications during the development of the project .	Project Sponsor to closely examine scope and potential complexity of future projects to determine level of management experience and supervision allocated to each project . Formal training in NHS Project Management should be adopted to support Project Manager 's from non NHS background.
Project Management	Successful Stakeholder involvement	The project had full stakeholder and project team involvement through out and this greatly contributes to a successful end product which is clearly the case for this facility, whilst fulfilling the initial brief. There is a perception from one stakeholder that there wasn't enough consultation and communication from the project team during the design phase. During the PPE process it was evident that this was not the case with regular meeting scheduled for the duration of the project.	Capital schemes to continue with high quality stakeholder involvement. Difficulties always arise in giving the end user the vision of what the end product will be like perhaps 3D modelling or site visits to similar facilities could alleviate these issues.
Project Management	Importance of Full Site Investigation, Contract and Cost Control	The discovery of an existing water main resulted in an extension of time award.	This could have been designed out if exhaustive surveys had been under taken during the design period to mitigate the unknowns and subsequently enable construction programme to be met and reduce cost associated with the extension of time. When multi external end users are involved greater emphasis must be placed on ensuring that head of terms negotiation are complete and all costs payable by these parties are issued in writing.

Project Management	Contract Management	Whilst the chosen procurement route of traditional was a success on this project, post contract cost certainty could have been improved on by reducing the level of Provisional Sums in particular relating to Mechanical and Electrical Works	Reduce the level of Provisional Sums in particular relating to Mechanical and Electrical Works. This could be achieved by ensuring that the consultant has completed the design to an expected standard or having more front end programme time to facilitate a more detailed design being completed prior to the tendering process.
Project Management	Successful Stakeholder involvement	The project had full stakeholder and project team involvement through out and this greatly contributes to a successful end product which is clearly the case for this facility, whilst fulfilling the initial brief.	Capital schemes to continue with high quality stakeholder involvement.
Project Management	Clearly defined Project Management roles and single point of responsibility	From inception of the Project it was made clear that responsibility for delivery of the project would sit only with the NHS in house Project Manager. This responsibility included full control of the budget.	At the commencement of all Projects, roles and responsibilities and budgetary authority is made clear.
Project Management	Change Control	Roles and responsibilities were made clear at the commencement of the project. Change control of any kind must come through the Project Manager	All people involved in Projects are advised that no change can be made unless approved by the Project Manager. Only the Project Manager can instruct a contractor
Project Management	Change Control	Change Control was managed by the Project Manager. Any request for change was forwarded to the Project Manager. The Project Manager then had these changes costed by the Quantity Surveyor prior to instruction. This ensured that the Project Manager was always in control of the budget	If something is to change within a project then this must be managed through an appropriate change control mechanism to establish the full impact of the change before implementation. All Project Managers now managing this appropriately. Changes to the contract are only made after financial consequence is known and any impact on budget is understood
Project Management	Clearly set targets in terms of time, cost and quality	The Project Manager had a clear understanding of his responsibility for time, cost and quality. The Project Manager was fully aware of the critical success factors which would be measured to monitor his own performance.	Prior to commencement of a Project clearly set goals in terms of time, cost and quality are set. These goals must be realistic and deliverable. The Project Managers are advised that their performance will be measured on this basis.

Project Management	Concise Programming of works.	This work was carried out in an operational department within the hospital. Proper phasing of the works allowed the department to function whilst the work continued.	Detailed phasing and programming of works must be addressed as early as possible. Departments must be involved in this process to ensure deliverability.
Project Management	Early engagement of contractor in programming and phasing.	The Contractor was involved in all planning and programming.	Contractors must be involved in the planning of works and programmes. Early engagement of the Contractor will facilitate this
Project Management	Robust Risk Documentation and management	A risk log and risk mitigation log were used.	Major projects must properly document risk. All risks must be owned and mitigation measures recorded. Risk and mitigation logs treated as live documents and revisited regularly.
Project Management	Project Insurances – Specified perils	A flood occurred in an occupied building undergoing refurbishment and the cause was one of the specified perils in the contract. As a self – insurer the NHS Board had responsibility to make good all damaged areas that were part of the existing building and not part of the works. This has resulted in an additional cost pressure for the Board and it has to act in negotiations with the contractor’s all risks insurer for recovery of any sums due.	Insurance requirements under JCT contracts where Option A, B or C is to apply but are for works as part of a refurbishment of existing building or extension are to be assessed for the contractor to provide the insurance cover and premium costs of insuring the existing buildings against the specified perils. A value for money assessment is to be done on an individual project basis based on size, value and duration of project and risk to other service delivery areas in close proximity to the works.
Project Management	Communication Planning	A number of ward refurbishment programmes received feedback comments from senior nursing staff that they had not been involved in the design briefing process. User Group and Stakeholder consultation had taken place from feasibility, detailed design and through to delivery stages.	Although a number of User Group leads had been identified on the project and had the authority to sign off plans for development the wider communication of these decisions potentially was not progressed. A template communication plan is being developed and will be adaptable for small and large value capital projects alike and will clearly set out in a few pages the types of

			communications that will be required on a project and who is responsible for distributing this information.
Project Management	Construction Design and Management (CDM) Regulations 2007	A query was raised by the Health and Safety Executive (HSE) in relation to appointment of the Construction Design and Management (CDM) Coordinator and Principal Contractor in relation to 'turnkey' projects where an equipment installer was installing major medical equipment and carried out all construction related alterations to allow this to occur. HSE required clarification on who the main client body was in this type of project i.e. the Board or the Equipment Installer. Clarification was required to ensure the correct bodies were appointed as Principal Contractor and CDM Coordinator.	Capital Project Managers, Facilities Health and Safety Managers and those employees of the Board responsible for the operation of major medical equipment require to collaborate earlier in the process of equipment replacement programmes to identify potential construction works related matters and ensure that all current CDM regulations are complied with correctly and the Employer's responsibilities are properly carried out. Standard form of appointment for CDM Coordinators to be updated in line with CDM Regulations 2007, and contracts for construction works to be clearly checked that the Principal Contractor has been appointed in accordance with and reference to these regulations.
Project Management	Early Briefing Information	A number of projects developed over a significant period of time have been subject to a high degree of User changes due to organisational change, personnel changes, and limited early briefing information.	Pre development of an Initial Agreement the Capital Team intend to use a simple Project Mandate form for completion by Project Senior Reporting Officer's identifying a number of key considerations for any project and to establish the early briefing parameters. This will be a reference point for projects bidding for Board formula allocated capital or progressing through the SCIM business case process.
Project Management	Project Reporting	Different parts of the organisation reported on capital projects in different formats. Consistency of approach required.	A revised reporting procedure has been developed consistent with the Scottish Government Construction Procurement Policy, Code of Procedure for Construction Project Management and the Association of Project Managers key competencies.

Project Management	Successful User Group involvement	<p>The various user groups for the facility were represented at the Technical Meetings held throughout the pre-construction phase of the project. Formal consultation and sign off was carried out against 1:50 room layouts and room data sheets.</p> <p>Attendance at the Technical Meetings by User Representatives was essential to resolving a number of issues of the design.</p>	<p>Involve user representatives in the development of the design rather than simply consult when key areas of design require sign-off. Ensure that user group representatives have full authority to make decisions on behalf of the whole group. User groups with previous experience of this type of involvement greatly assist the process.</p>
Project Management	Successful Project Steering Group involvement	<p>The scale and nature of this project was such that there was a seamless divide between the Project Steering Group and the Technical Team. This avoided the issues of poor communication that can be a feature in projects where the Project Steering Group is remote from the Technical Team, particularly the designers.</p>	<p>Where possible, reduce the layers of decision making and the 'distance' between the Users and the Designers. This however is only likely to be possible on smaller projects with very discrete functional requirements.</p>
Project Management	Change Control	<p>The main areas of Change Control in the project occurred during the construction period. Change control was well managed by the Project Team using the Early Warning and Compensation Event mechanisms in the NEC3 Contract. During the design development it became apparent that value engineering was required because the estimated cost was in excess of the Outline Business Case assessment. This exercise was conducted through a series of workshops involving the entire team and resulted in an affordable project that still met the key user requirements.</p>	<p>The issues surrounding change control arising out of the Outline Business Case costs are considered below. NEC3 provides a strict and invaluable regime for the control of change when properly implemented which it should be under NHS Frameworks projects.</p>
Project Management	IM&T input	<p>There was limited IM&T input required for the project – comprising only the requirements for the locations of outlets and servers. No issues arose in this regard.</p>	<p>IM&T input must be available at the appropriate stages in the development of the brief and design.</p>
Project Management	Infection Control and Risk Management	<p>The key area for Infection Control input was in regard to the layout of the Local Decontamination Units of which there were two in the facility – one for the private dental services provider and one for the outreach graduate training. Despite the importance of these issues it appeared that some decisions were based on individual practice and opinion. This was particularly evident during the value engineering exercise.</p>	<p>Improved local access to guidance should be by project teams on Infection Control with clarity on who are the key decision makers.</p>

Project Management	User Group sign off and use of Project Alert system	The various user groups for the facility were represented at the Technical Meetings held throughout the pre-construction phase of the project. Formal consultation and sign off was carried out against 1:50 room layouts and room data sheets. Attendance at the Technical Meetings by User Representatives was essential to resolving a number of issues.	Involve user representatives in the development of the design rather than simply consult when key areas of design require sign-off. Ensure that user group representatives have full authority to make decisions on behalf of the whole group. User groups with previous experience of this type of involvement greatly assist the process.
Project Management	The business case process	The costings in the Outline Business Case (OBC) were prepared before the NHS Frameworks was to be adopted for procurement. It was found that the Frameworks resources costs were considerably in excess of the allowances in the OBC. There was a further shortfall in the equipment funding allowances.	Ensure allowances in OBC are robust and reflect the procurement process to be adopted.
Project Management	Cost reporting v cost control	Cost reporting was carried out in conjunction by the Project Manager and Cost Adviser. No particular issues arose in regard to cost reporting and cost control.	Better clarity on the roles of the Project Manager and Cost Advisor to ensure no duplication of roles.
Project Management	Public Involvement	A public open event was held to promote the proposal with participation by most members of the project team including staff groups and design team members. Comments were welcomed and collected via a 'talking wall' and written notes with a view to incorporating suggestions where beneficial, affordable and feasible. However the location of the new development had been an ongoing issue from inception with polarised community views as where best to locate the new facility. Site availability and affordability meant our options were limited, as such this became a point of contention with some members of the community and detracted from the overall good news around the development	A more pro active communications strategy with the community around the criteria for the site selection decision. Clarity on the areas where the public view could and could not be incorporated into the planning for the project
Project Management	Successful Project Steering Group involvement	The project group included, on a permanent basis, the practice manager who represented the main user (GPs) others were brought into the group as and when required. Site meeting were held on a weekly basis and membership included the Practice Manager.	The users were fully aware of all ongoing project issues

Project Management	Change Control	Given the scale of the project there was limited chance of significant change, other than from an external source or as a result of a previously unidentified site specific issue. Users were fully engaged and a full set of all drawings issued for comment to all users via the Practice Manager. If necessary these were explained at project meetings to ensure users had complete understanding. Likewise extensive site investigation allowed for a far greater certainty as to below ground conditions. As such no surprises and changes minimal	Limit uncertainty thro' thorough investigation/design and close liaison with user's to ensure full understanding of what's being provided, as such change was minimal
Project Management	IM&T input	IM&T involved from the beginning as such requirements incorporated from the outset	Identify the appropriate person and engage as early as it practicable
Project Management	Infection Control and Risk Management	Infection control involved from the outset and all their recommendations were incorporated in the proposals	Identify the appropriate person and engage as early as it practicable
Project Management	Infection Control and Risk Management	HAI SCRIBE is now used for every project and this has been the case for some time. Close liaison with the Infection Control nurse for the site is vital.	Working closely with Infection Control has been beneficial but HAI SCRIBE can sometimes be interpreted as a black and white document and simply does not cover all the issues. A more generic understanding and interpretation is needed, however these issues can be discussed and resolved at a local level.
Project Management	Impact of Scottish Health Planning Notes 13 and decontamination expectations	The project initially included a Local Decontamination Unit (LDU) however as the project progressed and guidance on LDU's developed the thinking around decontamination changed such that the decision was taken to provide a centralised decontamination facility rendering this area redundant	A clearer understanding of the risk associated with an ongoing debate on the decontamination guidance would have allowed us to have a contingency plan for the situation that arose
Project Management	Cost reporting v cost control	Quantity Surveyor (QS) provided monthly cost reports based on costed Architects Instruction (AI) However costed AI's had to be produced within 3 days of issue of instruction. As such Quantity Surveyor estimated costs rather than agreeing with contractor. These estimated figures were incorporated in the monthly reports. Some of the actual costs took a significant time to agree and were in some instances at variance to the costed AI's. As such the	QS should from the outset agree with the contractor an appropriate time to determine costed AI's to ensure accurate monthly cost reports

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		accuracy of the cost report was debatable and could have resulted in inappropriate financial decisions	
Project Management	Successful User Group involvement	All of the above projects were completed on time and on budget. Strong User group involvement contributed significantly to the success of these projects.	It is recommended that the inclusion of department representatives through Project Sponsors remains a requirement for all projects of any scale.
Project Management	Successful Project Steering Group involvement	The projects had effective Steering Groups. This had a positive impact on vital decisions for the project. However, on occasion when the Project Sponsor / Key Decision Maker was not available and a deputy was in attendance it was found that they could not always make the necessary decision and it had to be referred to the senior member of the team which in turn could impact on timescale.	Where practicable, the Project Sponsor or deputy has a clear delegated authority to allow effective and prompt decision making
Project Management	Change Control	The project was contracted via Frameworks Scotland where a formal process was used. It does give the necessary control but paperwork is substantially increased. However, it was felt on occasion that the process was onerous. The other projects were procured using the local NHS Board Framework, where slimmed down change and cost control procedures were used successfully.	No changes recommended, other than for a smaller projects slimmed own versions of change control procedures should also be used to control costs effectively.
Project Management	IM&T input	On some projects liaison obtaining Ehealth information was difficult, however, after discussion and meetings with the necessary staff this was resolved and the projects were completed successfully.	Early involvement with Ehealth and telecommunications is vital to the success of a project and it is essential that the department is involved at project design stage.
Project Management	User Group sign off and use of Project Alert system	It was felt that User group sign off can be delayed if appropriate personnel are not available at all project meetings.	All Project Manager's should endeavour to have clearly delegated authority for the Project Sponsor to make decisions as often as possible.
Project Management	The Business Case process	The Business Case process can be time consuming, however, it is felt that time should be taken to ensure the Business Case is robust as this leads to a quicker Governance and approval process.	It would be beneficial if a simpler guide on Business Case and Governance Process is compiled and made available to services involved in Business cases.
Project Management	Cost reporting v cost control	It is important to understand and challenge every entry in the cost control report submitted by the Quantity Surveyor and compare it to the clients own cost report.	It is important that Project Manager's take ownership of the Cost Reporting process and have the skills to be able to understand

			what can be significant and complex documents coming from Quantity Surveyors. Close scrutiny and a solid understanding of the report will enable good cost management and financial decisions.
Project Management	Project Initiation Document (PID)	Early development and agreement of the Project Initiation Document identified the issues in respect of each project e.g. Benefits criteria, roles and responsibilities, communication plan, risk log etc.	The local NHS Board proforma Project Initiation Document should be used on all Capital Projects following the Initial Proposal approval by the appropriate Group.
Project Management	Successful user involvement	Early contact of the member/s of the Project Team ensured that the design and specifications largely meet with their requirements.	Project teams should include user representation from the outset.
Project Management	Successful User Involvement	Generally the users could understand the design and visualise layouts and specifications, where this proved difficult users visited other existing similar areas. Where possible mock ups were created	All practical methods are utilised to ensure that the end users understand the design proposals.
Project Management	Infection Control	Early meetings with Infection Control staff clarified any issues between users, designers and the contractors in respect of the scope of the works and the management of the works on a “live ward”	Infection Control staff to be an integral part of the project team at the outset of all projects.
Project Management	Health & Safety	Early meetings with Health and Safety staff clarified any issues between users, designers and the contractors in respect of the scope of the works and the management of the works on a “live ward”	Health and Safety representative to be an integral part of the project team at the outset of all projects.
Project Management	Early Warning	All stakeholders signed up to an early warning approach whereby they agreed to advise at the earliest opportunity of any potential issues in respect of the project.	Project stakeholders should be encouraged to participate in an early warning approach.
Project Management	Assistance to IT	The IT department carried out a project with no reference to a Project Manager. Unfortunately this lead to poor planning and programming. Communication with affected staff was minimal and lead to a lack of cooperation.	Any significant projects should involve an experienced Project Manager.
Project Management	Communication	Prior to a considerable number of required shut downs an early warning communication plan was utilised. Early involvement and awareness with the affected staff and regular reminders/updates enabled the minimal disruption to service delivery.	Early and regular communication should be maintained at all times with affected stakeholders.

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Project Management	Funding	Budget control. Monthly project monitoring meetings with Capital Management Group provide early warning of any budgetary fluctuations. Early adjustment of either individual project budgets or the portfolio of Capital Projects enables maximum use of the Capital allocation within the financial year.	Monthly Capital Management Group to continue
Project Management	Change Control	Proforma change control reduced the amount of change of requests from stakeholders.	Proforma change control to remain
Project Management	Public Involvement	The appointment of identified members of the public on to the design team enabled early feedback during the design process and ensuring patient understanding and input into projects.	Early involvement of identified members of the public to be carried out.
Project Management	Initial Proposal Process	All projects are required to complete an initial proposal for consideration by appropriate Group. This process enables the NHS Board to make an early informed decision on the merits of progressing individual projects to the next stage.	Initial Proposals to be completed for all Capital Projects.
Project Management	Project governance framework	Running a separate Project Team and Project Board in a small organisation led to unnecessary duplication and overlap and produced the risk that important things would fall between the two. There was a general lack of motivation in the Project Team as all the decision making powers rested with the Project Board and day-to-day work was done through the user groups and project manager. We felt this structure was too cumbersome given the small pool of people to draw from.	In future to run a single Project Steering Group (PSG) with membership comprising all the key players at Project Board and Project Team levels, with a comprehensive agenda to ensure a single system of governance assurance and accountability.
Project Management	Successful Project Steering Group	The Project Team attendance was sporadic due to the lack of motivation (see above), and meetings were not held as often as originally specified.	A single Project Steering Group would ensure that staff gave attendance and input due priority.
Project Management	Cost reporting and control	Whilst the Quantity Surveyor produced regular reports that monitored costs against quantum and showed cash flow, the reports did not take cognisance of the funding profile as this was not specified in the contract.	In a smaller organisation where experience and competence is lacking, it would be helpful to add a new dimension to the Quantity Surveyor remit to report on annual (Central Resource Limit (CRL)) profile.
Project Management	Cost reporting and control	The project was brought forward a financial year but the Central Resource Limit (CRL) profile was not adjusted. This was missed due to a number of factors but the problems with Project Board vs Project Team described above is	In future a single Project Steering Group, supported by a dedicated (assistant) accountant, would minimise the risk of profile coming adrift from CRL

		seen as the most important factor. In addition it was felt that the finance involvement was at too high a level and there needed to be additional operational support from an accounting assistant.	
Project Management	Post Project Evaluation (PPE)	The project was supported by an external consultancy who assisted in developing the business case and set up the framework for the project. They were also engaged to provide part-time assistant project management support to the project manager/team. This did not work in practice and proved too time consuming to maintain, and so the arrangement was terminated. However a key role was to undertake evaluation and this should have been covered by alternative means.	In future we would engage an external body to assist in producing the business case and setting up the project framework, and thereafter to monitor and evaluate the project at key stages.
Project Management	User Groups	There was too much overlap between the user groups (more or less the same people on all of them). Separate groups for decontamination and equipment resulted in unnecessary duplication. Similarly, construction and design groups could also have been combined.	In future we need to keep the number of user groups to the right level for the size of organisation to streamline decision making processes.
Project Management	Key partner	The project was heavily underpinned by an appropriate NHS Organisation whose sponsorship made the project a reality. However we experienced some issues. It was a challenge to deal with a multi-layered, complex decision-making organisation such as this, in terms of trying to get timely decisions. However it was extremely helpful to have access to such a range of subject area experts.	In future we would recommend a partner appoints a single point of contact that acts in effect as an internal project manager for that partner organisation.
Project Management	User Group Involvement	Overall the projects were successful due to the early and continuous involvement of the nominated user groups. However, some groups did not have a clear view on the development requirements and had to be guided.	Continue with the involvement of user groups with emphasis on involvement from the early stages.
Project Management	Information Communication Technology (ICT) Input	Although clear procedures had been put in place with ICT Department regarding notification of Capital projects, their requirements were not monitored closely enough and there were problems with their works programme not coinciding with the building programme. However, these issues were resolved and did not impinge on the handover dates.	Continue to liaise closely with ICT Department throughout the project. Ensure an ICT representative is available for works site meetings.

Project Management	Control of Infection/Health and Safety	Some difficulties arose during the project with control of infection requirements changing during the construction phase – extra wash hand basins, however, these issues were easily resolved. At handover issues were raised by Health and Safety Risk Advisers regarding oxygen storage signage. However, clear advice was not received on which signage should be used.	Establish clear infection control and health and safety requirement with both groups. Put a matrix in place that will ensure that any changes to infection control and health and safety requirements are picked up by Estates.
Project Management	Utilities	Difficulties were experienced with all utility companies – gas, electricity and water. Although procedures were followed with all utility companies, in particular, the appropriate notification for installation of new supplies. It was found that the utility companies didn't keep to their installation dates. This did cause some concern with the project programme and in one instance delayed the completion.	Liaise with utility companies and submit application earlier than required. Monitor application process closely, with all utility companies, in order for any issues or delays to be dealt with in a timeous manner with minimum disruption to projects.
Project Management	Stakeholder involvement	The Guaranteed Maximum Price was secured without full sign off and knowledge of the design plans and proposed specification by key authorised officers e.g. Health and Safety and Infection Control. This lead to considerable discussion at various stages throughout the project as provisional areas were refined to meet stakeholder requirements, often with minimal options available	Full stakeholder participation is required at all stages of a project, from the initial concept through design and specification agreement.
Project Management	Pre-construction decisions - Early appointment of Project Supervisor	To allow inputs into testing for defects and quality control.	Consider appointment of Project Supervisor as early as possible.
Project Management	Stakeholder involvement - Quality Control /User Expectations	End users to sign-off Room Data Sheets, provides more certainty of completed facilities.	Ensure nominated end users have the time and opportunity to sign-off Room Data Sheets.

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Project Management	Technical scrutiny of design proposals and adherence to Scottish Health Technical Memorandums	Although a good facility was delivered there were issues with defects and compliance with Scottish Health Technical Memorandums which delayed occupation by 5 months	Early and continued involvement of Board's Estates staff and a competent Clerk of Works/Supervisor to ensure design is Scottish Health Technical Memorandums compliant and work carried out to a high standard.
Project Management	Confirmation of design requirements	Changes made to design while under construction	When there is a lengthy delay in a project between, conception, design production, approval process start on site, a review should be undertaken to ensure that the project outcomes remain the same and requirements have not changed.
Project Management	Post Project Evaluation - Stakeholder Feedback	The Boards Post Project Evaluation (PPE) process gives all stakeholders an opportunity to provide feedback on each individual project this provides an opportunity for the Board to learn lessons and provides a recognised route for all those involved in a project to provide their feedback.	The internal PPE process is to be continued on all Capital Projects. The process is considered to be straight forward and applicable to all ranges of projects.
Project Management	Timescale/ planning	Successful Patient assessment and treatment led to project implementation	Capital investment plan to include health centre equipment refresh every 5 years
Project Management	Ensure that the design and scope of the project is agreed prior to submission of the business case/ request for funding.	A strategic projects groups has been established to provide additional support in the delivery of projects.	Ensure proper structures are in place for the approval of all building projects with the key individuals identified at the business case stage

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Managing user expectations	Merging of services and workforces (in this case two practices coming together)	Improved integration and more effective team working in the new facility.	Adequate preparatory work should be undertaken to agree merging of policies and systems to facilitate staff adapting to working in a new facility within a changed workforce.
Managing user expectations	Staff perceptions that there had not been enough specific user involvement for some areas.	<p>Staff working in clinical or other specialised areas have more input and agreement to the design of their particular working area.</p> <p>This should also reduce the risk of having to redesign and alter the facility either prior to, or soon after occupation</p>	There should be a system in place for the project team to be sure that specific clinical (and other) areas have been agreed by the staff who will be using them prior to being signed off by the managers. This should also be applied to other agencies who will be occupying the building

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BRE Environmental Assessment Method (BREEAM)	Compliance with some aspects of BREEAM requirements may affect other aspects of either other BREEAM requirements or the functionality of the building	Building will comply with BREEAM but will still function efficiently	Consideration is given to how these could interact upon each other. For example, how a high level of insulation may cause overheating in the building resulting in the need for a cooling system.

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Commissioning	Smooth transfer of staff and services.	Timing of handover and relocation (one project resulted in handover and relocation being undertaken during extreme weather conditions in December)	Endeavour to programme the commissioning of the building and relocation of services to avoid likely periods of extreme inclement weather.
Commissioning	Inadequate time allowed for commissioning of new facility	Equipment/ furnishings in place and staff fully orientated to the layout and policies of the new building.	Allow adequate time and resources for the commission process and ensure appropriate orientation has been achieved
Commissioning	Handover	The commissioning period could have been better managed and as is often the case, the commissioning period is squeezed into whatever time is available at the end of the programme prior to occupation	In future capital projects a defined commissioning period needs to be programmed with an adequate duration. In larger Capital projects thought to be given to the appointment of a Commissioning Manager.
Commissioning	Post Project Evaluation	Continuity of teams through Outline Business Case (OBC), Full Business Case (FBC), project delivery and then Post Project Evaluation (PPE) can be challenging.	Clearly documented strategies and methods of tackling PPE require recording in FBC documents and circulated to those in the Project Teams that will take the work forward.
Commissioning	Equipment Procurement	The equipment procurement carried out was effective. This was assisted by the project team in making sure equipment issues were being dealt with.	Utilisation of appropriate organisation to de-risk equipment issues arising during procurement.
Commissioning	Handover	The Handover process was generally successful albeit largely due to the input of the Framework Project Manager checking that the arrangements and dates agreed were in accordance with the contract. The actual handover meeting was preceded by a pre-meeting held one week in advance so that handover took place as planned. The Contractor lodged claims for various Compensation Events at Handover. Ultimately these were largely rejected as being spurious.	Forward planning for Handover is essential so that all parties are aware of the various inputs and actions required.

Commissioning	Equipment Procurement	Initial equipping costs were initially omitted from the scheme and only incorporated at a later stage. As such additional funding had to be sought from within the localities capital allocation	Initial equipping should be incorporated in global budget determination
Commissioning	Handover	Handover was successful with realistic handover/ transfer and opening dates	Realistic dates for opening should be set based on actual requirements and not an arbitrary calendar date
Commissioning	Equipment Procurement	This has been challenging and found that Project Manager involvement is critical.	The challenge for this should not be underestimated and this should be developed ahead of completion of the Business Case.
Commissioning	Handover	Handovers were in most cases successful. Appropriate handover timescales were allowed for in the project programme and all the affected user staff, estates and infection control attended handover meetings where possible. Pressure was applied to reduce this timescale by the clinical need of the project.	Project programmes to continue to allow the required handover period. Project teams to resist reduction on commissioning/handover period.
Commissioning	Delay in occupation due to poor circulation of hot water.	At Detail Design Stage, discussions were held between Estates and the Design Team and it was confirmed the existing hot water infrastructure would be capable of supporting the refurbished development. It was subsequently established at commissioning stage that the existing system was unable to provide sufficient flow and an additional pump and rebalancing was required resulting in a delay in occupation.	Although local Estates knowledge and assumptions are invaluable in developing designs, The NHS Board has now implemented procedures which require Design Teams to monitor and establish the efficiency and capacity of existing services at design stage.
Commissioning	Commissioning Period for Engineering Services	Commissioning Period particularly for the engineering services was compressed in order to achieve a deadline for handover.	From a Capital Projects Department perspective this has now been addressed in that a defined period will be allocated within the construction programme and unless overridden by a clinical need this timescale will move with the end date for the construction phase of the works, i.e. if the build element takes longer, the commissioning period in its entirety moves - it is not reduced.

Commissioning	Transition from project to managed asset	Whilst Estates Maintenance did appear at the design review workshops and made some useful contributions, Site Progress and Technical meetings and system demonstrations particularly would have benefited from their greater involvement.	Since the completion of this project a greater emphasis on the role and attendance of Estates Maintenance Staff at such meetings/ demonstrations have been expressed. This aspect will continue to be monitored and will be the subject of higher level discussions between Capital Projects Department and Estates Department.
Commissioning	Commissioning and handover	The project was completed just before Christmas, under pressure from academic partners and we allowed the contractor to leave too early. In hindsight we should have retained the contractor for a further 2-3 weeks whilst we did snagging and undertook some basic testing. We also allowed staff to move in too quickly after handover.	In future we will ensure a longer commissioning period to allow time to undertake appropriate testing and snagging before the contractor leaves the site and patient services commence.
Commissioning	Commissioning and handover	The Board did not have a detailed commissioning post construction plan. This meant that the commissioning was very ad hoc which has caused some minor issues.	Next time we will include a detailed commissioning programme in the overall project plan and ensure that it is adhered to.
Commissioning	Snagging	Snagging was undertaken by technical staff and therefore it did not reveal operational user issues which have had to be dealt with subsequently.	Next time we will involve users in the snagging during commissioning
Commissioning	Contract Award	Against the backdrop of continuing challenging financial conditions the failure of a contracted supplier can cause huge delays and other problems in project delivery.	Ensure robust financial appraisal process of potential suppliers as part of contract award, where dealing with a particularly financially troubled supply sector where risk can only be reduced not eliminated further ensure an on-going financial monitoring of key suppliers.
Commissioning	Staff training/ facility commissioning.	Although a detailed commissioning and staff training programme was developed, there continued to be problems with some of the building systems, most specifically the secure door entry system, once the building was handed over.	A more stringent testing and proving process for the secure door entry system would be advantageous.

Commissioning	The importance of planning in the procurement of Medical Equipment	To involve all key staff at early stages in the procurement process. Medical physics have instigated a system to ensure that key staff are invited to all discussions are new medical equipment.	To have in place detailed medical equipment replacement plans prior to the commencement of each financial year.
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Theme	Lesson Area	Outcome	Recommendation
NEC Contract and Contract Processes	Operational Requirements	<p>Theoretical training had been completed by all key officers within the Board on Frameworks and the NEC contract. Necessary timescales for approval etc were only fully understood until the Board progressed to the live construction phase.</p> <p>We were unable to anticipate all key decision points and as a result on a small number of issues coordination of all required individuals within the tight timescales was extremely difficult.</p>	Operational practice of the workings of the NEC contract could be progressed as case study training options by Health Facilities Scotland, however having completed our initial project we have become operationally aware of requirements.
NEC Contract and Contract Processes	Contract performance.	Improved communications and incorporating good project management.	Use of NEC3 projects that are publicly funded where possible.
NEC Contract and Contract Processes	Project Management	The Board has recently completed its first projects under the Frameworks Scotland process. Appointments and contract management of Principal Supply Chain Partners (PSCPs) and Professional Services Contracts (PSCs) via NEC3 is different to the traditional requirements of Joint Contract Tribunal (JCT) contracts. The project outcomes of the two schemes delivered via Frameworks Scotland have been positive.	Project Manager's awareness is to increase with regards the available support documentation on Frameworks Scotland via the HFS website. Training is to continually be assessed & provided via HFS and NEC. The operation of the NEC3 contract is different from that of the traditional JCT forms of contract and the Board continues to realise the importance of supporting Project Manager's with continual training on this contract form where applicable.
NEC Contract and Contract Processes	Project Management	Frameworks Scotland projects via NEC3 provide a greater degree of emphasis and contractual obligation on the project programme. This is a document that requires monthly approval by the Project Manager. The Project Manager therefore has to understand reasons for change, mitigating factors, potential implications on cost as part of the document approval cycle.	All Project Managers to benefit from short term programming and NEC3 programming training and gain practical awareness of early warning / compensation event on programme and potential impact on costs and works delivery.

Theme	Lesson Area	Outcome	Recommendation
Design of the scheme	Delay due to floor screed/vinyl	Building handover was delayed by 8 weeks due to slow drying out of a floor screed.	In hindsight, more focus should have perhaps been given by the contractor on the compatibility of the floor screed and vinyl coverings in relation to what was quite a tight construction programme.
Design of the scheme	Secure door entry system	Although demonstrated and proven prior to handover, there were later problems.	More stringent testing regime.
Design of the scheme	Vision Panels	Post-handover there was a failing of one of the fixings for a vision panel in a bedroom door. Although installed to the manufacturers recommendations, this required to be upgraded throughout.	
Design of the scheme	Secure Gates	There was much discussion over the locking arrangement for the secure gates and how to ensure the bolt/lock would not provide a foothold.	It was felt that a good solution was developed.
Design of the scheme	The swale/site drainage	Required to comply with the Sustainable Urban Drainage System (SUDS) that planning/SEPA requires, the swale in hindsight should not have been position outside the front entrance.	More focus on architect and other designers on layout of external areas including SUDS.
Design of the scheme	Pinpoint alarm (connection to other units)	There was much discussion on how this alarm system would be linked to other units.	In the end this seems to work well however the client preferred supplier/installer caused some problems on site. Consideration to be given to alternative suppliers/competition.
Design of the scheme	Recess for Fire Extinguishers	Developed to remove these from the main corridor where they may become an obstacle for staff walking with patients	A simple detail which should be considered on future projects.
Design of the scheme	The design phase of the project was disrupted by the requirement of the transport engineer to create additional parking spaces.	The scheme required radical redesign to accommodate the parking. A large amount of time and effort went into trying to mitigate these requirements and then into procuring additional land.	This was totally unexpected but may have been identified by more robust consultation and investigation of potential statutory requirements. <i>However, this assumes adequate discussion between the planning officer and the transport engineer at outline design stage.</i>
Design of the scheme	Working with existing buildings	Redesign required to accommodate 2 unforeseen elements caused significant cost and time.	Both of these were hidden elements albeit one may have been foreseeable.

Design of the scheme	Functional Suitability	The additional clinical rooms were designed in accordance with HBN30. Several minor changes in their layout were required but this wasn't substantial.	Providing consultants with standardised information in conjunction with stakeholder discussion gave an increased certainty of a positive outcome.
Design of the scheme	Ability of staff to visualise works from drawings	Issues arose whereby what was produced didn't match expectations	This is an inherent problem when dealing with complex drawings; this was minimised by good stakeholder involvement.

Theme	Lesson Area	Outcome	Recommendation
User Centred Design	Value of participative and collaborative design.	Improved patient dignity, reduced infection risk, reduced challenging behaviour.	Continuation of research into benefits and value of user centred design.

Theme	Lesson Area	Outcome	Recommendation
Partnering Culture	Contract relations.	Use of NEC3 ethos of non-confrontational “no blame” culture / partnering approach.	Consider use of partnering ethos for all NHS Scotland publicly funded projects and Framework arrangements.

Theme	Lesson Area	Outcome	Recommendation
Construction	Changes are always likely especially when users become more involved/ more common once works commence.	Change Control process proved to be very beneficial.	Ensure Change Control Process is implemented on all projects.
Construction	Quality of Works	A decision was made to employ the services of a Clerk of Works to monitor the quality of work and compliance with specifications/requirements. Not always required when the design team is not novated as they were on this design and build project.	Clerk of Works proved to be a very valuable member of the client team on this project
Construction	Access / Security / Fire Safety	A number of schemes have had design challenges around access for all / Disability Discrimination Act (DDA) compatibility, fire safety re hold open doors or fail safe doors and departmental security / clinical and patient separation. Technical solutions for automatic, assisted powered, hold open and fail safe doors require to be tested and proved.	Additional time is required to be built in at programming planning stages for design reviews with the NHS operational groups with responsibility for managing these areas. Access and journey routes through buildings need to be clearly defined early in the 1:200 floor plan development stages. Design teams require an early understanding of the types and volumes of pedestrian traffic per area to provide appropriate, robust and maintainable door solutions.
Construction	Asbestos	The regulations and guidance in relation to carrying out asbestos surveys has changed. The types of surveys now available are Management Surveys and Refurbishment and Demolition Surveys. Refurbishment surveys will be required for all work which disturbs the fabric of the building in areas where the Management survey has not been intrusive. This survey is therefore required before any refurbishment or demolition work is carried out.	Asbestos awareness training programme is to continue for all Estates Staff and Capital Project Managers in line with the new guidance and the Health and Safety Executive (HSE) Asbestos: The survey guide. Also refurbishment and demolition projects require to have budget allocations to deal with the survey and outcomes of any surveys and recognise the difference from the previous type 1, 2 & 3 surveys.

Construction	Healthcare Associated Infections v Anti Ligature	Construction briefing information in relation to the requirements of wash hand basin installations that meet Healthcare Associated Infections/ Healthcare Environment Inspection requirements require to be assessed against patient risk groups in mental health where anti ligature fitments may be higher priority.	Project Manager's to apply risk evaluation on a project by project basis with Infection Control and Risk management teams to ensure the correct priorities are dealt with.
Construction	Estates Training Records	Standard demonstrations with estates were undertaken prior to handover. Training of operational estates staff on the requirements for ongoing maintenance was carried out but not recorded for reference purposes.	Contracting and Estates teams to collaborate over initial production of Planned Preventative Maintenance schedules.
Construction	Estates Training Records	Estates were involved from the outset and were laterally brought into the project team to familiarise themselves with the design and have input to the commissioning/handover to ensure a smooth transition. From the outset contract was advised that the project Health and Safety were to be presented pre handover to allow an assessment of their accuracy and ensure they were available upon handover	With early engagement the facility took account of the remote location of the facility and the associated maintenance issues ensuring that the completed facility did not include non essential complex labour intensive equipment which could have resulted a costly maintenance regime
Construction	Estates Training Records	Estates operational managers are involved in design and project delivery. Training on Monitoring and Evaluation systems undertaken, which assists with the ongoing maintenance of the facility	Essential that estates operational staff receive training on all systems relating to the operation of the facility. This is normally built in to the hand over and commissioning of the site.
Construction	Contractor Partnership Working	Contractors were encouraged to work in partnership with the Board especially on major shut downs where all materials, resources and working methods are check listed and double checked prior to the commencement of the shut down.	Partnership working to be actively encouraged with all contractors and use of non binding partnership charters to be used on major schemes.
Construction	Early Contractor Involvement (ECI)	To minimise disruption and to develop realistically achievable detailed programmes for projects in live clinical areas early contractor involvement proved highly successful. A understanding of all parties constraints produced programmes to mutual benefit.	Early Contractor Involvement to be encouraged on all Capital Projects.
Construction	Delays caused by inability to gain access to occupied	Difficulties gaining access to adjacent operational clinical areas, to establish break-in points to existing services and carrying out subsequent installation, led to delays at early	The Board has now implemented procedures which require Design Teams to thoroughly survey existing services to

	clinical area.	<p>stages of the project.</p> <p>Clinical areas, which operate continuously, are often reluctant to offer access due to their unpredictable workload. Even when access arrangements had been agreed, they were often cancelled due to unforeseen clinical operations.</p>	<p>identify locations of services and establish break-in points prior to commencement of construction. This may cause initial disruption to operational clinical areas during survey works, but will enable subsequent construction work to be planned and programmed including identifying the need for decanting if required.</p>
Construction	Inadequate initial survey by the Building Services Consultant.	Resulted in redesign and rerouting of services to avoid clashes with existing.	All Capital Projects now require to ensure the Design Consultants carry out fully investigative surveys of the existing services prior to completion of their designs. If access is not available to occupied areas at design stage, the survey must be completed prior to commencement of work to avoid any unnecessary delay and any potential costs involved identified within the risk allowance.
Construction	The construction works were subdivided into separate phases so the building could remain operational	Due to time pressure the phases were compromised by the contractor to meet deadlines. This resulted in several instances where staff worked adjacent to contractors. Although no accidents occurred this situation is not desirable.	Although the Board considers emptying buildings prior to major construction works it is not always feasible due to the demands for the services provided
Construction/ Funding	Omissions from the Bills of Quantities resulted in contingency being required to fund the missing building services.	Disagreement between the Building Services Consultant and Quantity Surveyor over the responsibility for this omission.	<p>The introduction of support such as Framework Scotland should reduce the risk to the Board of any missing design elements, which would be the responsibility of the Framework Principal Contractor and their Design Partners.</p> <p>For those projects which are not procured through Framework Scotland, it is intended to appoint full multi discipline Design Teams</p>

			which will focus all design elements under one point of responsibility and avoid any uncertainty of liability (in future projects delivered through hub should also address this)
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Theme	Lesson Area	Outcome	Recommendation
Funding	Overall project budget make up	Project budget has limited scope for flexibility should unknowns with financial implications be encountered. Development of budget estimate are always pressurised to keep costs down, as such contingencies are normally kept to a minimum and scope for change limited. If the need for additional funding arose for one area it is usually compensated for by a reduction of funding in another, this could result in a lower standard being achieved with the resultant user dissatisfaction	Greater understanding that project costs by the very nature of the job do vary and should be accommodated
Funding	Overall project budget make up	The current economy has helped ensure successful outcomes once contracts are let, but there have certainly been problems at setting budget levels due to a lack of knowledge and understanding on costs.	Robust costings are essential and hence it is vital that Involvement of the Estates/Capital Planning Quantity Surveyor is undertaken prior to costs being passed to committees.
Funding	External funding streams	Several projects are currently underway using external funds and some of those completed were also from out with our Board.	It is essential that all items including construction works are designed and factored into project costs. Construction works will have to be monitored carefully to ensure compliance with site rules, and therefore early consultation with the nominated design team and contractor to confirm scope of works for such project is essential to ensure successful delivery of the project. It would be recommended to appoint a Project Supervisor and Cost Consultant to ensure value for money is achieved.
Funding	Funding contributions treated as capital or revenue	More time will be required to understand the cost make-up at a detailed level and in particular at the Initial Agreement stage. It may then be difficult to get an indication of the capital / revenue split.	A dedicated Project Manager and Finance lead, which are appointed for specific projects, is essential to the successful delivery of a project.

Funding	VAT Recovery	<p>VAT recoveries on capital projects for applicable elements on occasion have only been made after the capital project has closed or have not been properly built into initial project costing.</p>	<p>Ensure that VAT planning is an integral component of projects where recoveries can be made and built-in to original project cost plan and that recoveries as made at appropriate points as the project progresses including the involvement of contracted VAT experts in complex reclaim cases.</p>
Funding	Charitable Fundraising	<p>The Board ran a charitable fundraising appeal to add financial support to the Project. Full potential to incorporate fundraising supported elements to the build were not maximised as input early enough in the design, plan and specification was not achieved.</p> <p>This situation resulted in the charitable fundraising appeal not being positioned to fully support costs of certain construction enhancement areas.</p>	<p>Fundraising supported projects must have coordinated input from the Fundraisers early in the project at initial concept, design and specification stages.</p>

Theme	Lesson Area	Outcome	Recommendation
Effectiveness of the building		The building now appears to work well as a forensic mental health unit.	The Review Group which as been established to monitor the clinical service being delivered from the new premises and the effectiveness of the design/ environment in supporting the care package.
Effectiveness of the building	Building Layout	The building layout is a compromise due to working with an existing building. Despite this, skilful design, compromise and stakeholder involvement has produced a floor plan in which each area of the building is zoned according to activity / dept giving ease of way finding.	Whereas it was successful for this project, consideration should be given to the feasibility to extend or redevelop buildings based on design principles as well as core business needs.

Theme	Lesson Area	Outcome	Recommendation
Post Occupation Assessment	Distribution and return of questionnaires	Improved response rate in both numbers and content	<p>A review of the process highlighted issues around the distribution and return of staff questionnaires and it was decided that in future these should be fully administered by the team carrying out the evaluation and not by the practice/facility manager. A system should be adopted to issue questionnaires to a random selection from a staff list, with a reply-paid envelope for its return, which should ensure staff were more reassured about the confidentiality of their responses. This may also encourage a more balanced response as it is felt that sometimes people only complete a questionnaire if they want to complain about something and not if they are satisfied with the facility.</p>

Theme	Lesson Area	Outcome	Recommendation
Role of Advisers	Design/Professional Team	The design was taken up to RIBA Stage E+ prior to appointing a design and build contractor to whom the designers were novated to. This route of procurement proved successful with a positive relationship retained between all parties throughout the project and until the successful agreement of a final account.	<p>This Design and Build route proved successful.</p> <p>It is important when considering Design and Build to ensure the design is progressed to at least RIBA Stage E so there is little room for the contractor to change specifications.</p>
Role of Advisers	Cost and Programme	Project was delayed by 8 weeks but at no additional cost to the client. Project was delivered well below budget and included over £100k of additional works/changes.	The appointment of a professional project manager and cost consultant who are experienced in working with a client team and delivering similar developments.
Role of Advisers	Internal advisors to the Board such as IT, Fire Officer and Estates	Good communication between external and internal advisors meant that Scottish Health Technical Memorandum requirements and known issues with the building were identified at design stage and accounted for.	Ensuring that adequate time is made available for these specialists to provide comment is essential. How to involve them in individual projects can be problematic as these individuals juggle the demands of their workload with projects. Inclusion of these individuals within a project team whereas constructive may not represent best value for their time (i.e. they would sit through a meeting where their input is only required for 10% of the meeting). During this project it was managed by having several technical meetings which proved successful.