

1. Durability and quality

Durability of materials/building fabric

- Durability is an important factor in a hospital ward, which operates 24 hours a day and has a lot of heavy use.
- Wall protection should be provided eg dado rails along the corridors and this should be robust so that it is not itself easily damaged.
- Flooring should be durable as it suffers so much wear and tear from constant movement of people and equipment.

Quality of materials/building fabric

- Walls should be designed to support items eg patients lights, wall mounted TVs, hooks for patients belongings.
- Ceilings and walls should be designed to reduce the impact of noise travelling from floor to floor and room to room.

Quality of building services

- Building services have a major impact on the work of the ward. Particular attention should be paid to the quality of plumbing as leaks, floods and blocked drains can cause problems for patients and staff and could have health implications.
- If air conditioning systems are installed, the chosen system should meet the needs of a hospital in terms of infection control.
- Lifts play a vital role in the work of a ward and should be designed for hospital use, ie constant, heavy usage. If they break down the whole building is out of action.

2. Operation and maintenance factors

Ease of cleaning

- A ward is always occupied so cleaning has to be carried out around the patients and staff with as little disruption as possible.
- Grilles eg from air conditioning should not gather dust or dirt.
- Finishes should be easy to clean eg floors should not require sealing, only mopping as these are cleaned very frequently.
- Toilets, kitchens etc should have easy to clean surfaces and there should be enough space in these areas to provide easy access for cleaners and equipment.
- Space to move furniture out is very important for ease of cleaning. It is very hard to clean a building, particularly behind the beds and lockers if these cannot be pulled out properly.
- Some hospitals now have shower rooms on the wards with the toilet and shower in the same room. These can be more difficult to keep clean than separate facilities.

Ease of maintenance

- Ease of maintenance is vital in a hospital, as there is no time when the space is unoccupied or facilities are not needed. If major works are needed the patients have to be decanted so these tend to be avoided as much as possible.
- It should be easy to access services for maintenance, for example the ducting etc should be easily accessible in the ceiling space, in the wall pillars or behind panels in the corridors.

Waste disposal and storage

- Each ward should be provided with a self-contained utility space for waste storage. Otherwise waste and dirty linen bags are left around the ward and require additional collections as well as constituting a health and safety hazard.

Storage for spares and supplies

- Storage for cleaning materials etc should be provided on each ward as these are in constant use for cleaning spills etc.

3. Environmental conditions

Thermal comfort

- Good heating and ventilation are very important in a ward, however patients and staff have very different needs in this respect. The staff, (nurses, porters, physiotherapists), are doing a very active job and so they feel hot while they are working, whilst the patients are dressed in nightclothes and are static. Often the windows are situated in the patients rooms, whilst the corridors and common areas where the staff are working tend to be internal, adding to this problem.
- An uncomfortable environment can produce negative health outcomes such as headaches, fatigue and other minor ailments. It can also affect staff and patients by increasing stress. If they are uncomfortable patients complain more and this in turn increases the pressure on staff.

Air movement/ventilation

- Wards should be well ventilated for the comfort and health of staff and patients. Ward blocks should be designed to maximise natural ventilation, but this is not always possible eg restrictions on window opening for safety reasons. If air conditioning or comfort cooling is installed the systems should be positioned to ensure that patients do not experience cold spots and draughts.
- Ceiling fans can be used as a solution to provide increased air movement although desk fans are not always suitable as they can cause papers fly around.
- Good ventilation is particularly important in any smoking rooms provided for staff and patients. It is also vital in any side rooms, as these are usually isolation rooms with closed doors which can become very stuffy.

Aural comfort/noise

- Patients need to have peace and quiet as far as they can although a certain amount of noise is inevitable with so many people around and equipment being used. Any extraneous noise should therefore be reduced or eliminated if possible eg lift alarms, external machinery.
- Soundproofing both between wards and between floors is important, as in a ward there is a lot of activity and movement eg running down corridors or using footpumps for raising/lowering of beds.
- Patient alarms and phone rings should not be audible in adjacent wards as this can be confusing for staff.

Access to daylight/view

- Access to daylight is very important for the well being of staff and patients. The design of many wards means that the staff offices and nurses stations, desks etc are internal and receive little natural light.
- As patients and staff like to be able to see out of the windows, these should be large enough and at a suitable height so that patients can see out easily when they are lying in bed or sitting in a chair. The view from the windows is important to the ambience of the ward.

'It is pleasant to see out, particularly if you can see people walking about outside. It makes us feel less cut off from humanity.'

Electric lighting

- Lighting should be a mixture of general and task lighting. Patients should be provided with night-lights and staff prefer some form of task lighting at their desk, particularly for night staff.
- The lighting should be positioned so that patients are not disturbed when lights are turned on at night.

Acceptable level of control over environmental conditions

- Staff can control conditions by opening windows or turning fans, air conditioning and radiators on and off. It is important for patients to have a light by their bed that they can control themselves.
- Controls should be user friendly ie light pulls should be easily distinguished from alarms.

4. Business aims (inc. financial factors)

Value for money

- Cost is important in a hospital, but not at the expense of quality — whole life cost is what is most important. Value for money has to be taken into account throughout the planning and construction process.

Operating costs

- Running costs should be comparable to those expected in the industry via benchmarking data.

Business drivers

- The provision of an adequate number of beds to accommodate the number of patients is one of the main business drivers for any hospital.
- It is important that the ward should work well for patients and staff as achieving staff satisfaction as well as patient satisfaction is a key business objective for a hospital. This is impacted upon by satisfaction with the building and its effect on physical and mental well being.

Adaptability/flexibility

- Flexibility in the design and layout of the interior of the block is important to support changing needs and work patterns. Change happens so often in a hospital, that it is difficult to foresee what the required layout will be in 5-10 years time.
- Mechanical and electrical services should be designed for flexibility to avoid expensive and time-consuming alterations.
- Flexibility of the construction of the building is also very important ie the foundations should be able to support possible extensions to the block to cater for future needs.

5. Sustainability/environmental factors

Energy efficiency

- Hospitals use a great deal of energy and are therefore seeking ways to be more energy efficient, particularly in terms of overheating in wards.

Waste recycling

- Hospitals produce a tremendous amount of waste, some of which could be recycled if more facilities for this were introduced.

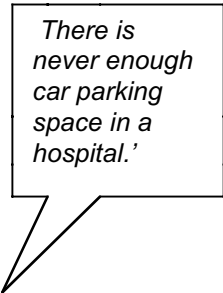
6. Access factors

Adequacy of transport to site

- Parking in a hospital is a problem for patients and visitors and staff car parking is often very limited even though most hospitals have introduced charges and controls. Local Authority policies will reduce parking provision further. Solutions could include park and ride schemes, facilities for cyclists, car-sharing schemes and improved public transport.
- Public transport is not always an option for staff who work late shifts as there are not always night buses in the vicinity and there are safety issues for late workers.
- Provision should be made for disabled parking near areas where outpatients visit as they are often temporarily disabled.

Access within the block

- Ease of access into and within the building is important as well as to and from other departments. There is a lot of movement of people within a hospital, and many of these (patients and visitors) may not be very mobile.
- Corridors and doorways should be wide enough for the porters to manoeuvre beds and trolleys through easily to prevent accidents and back strain. Items mounted on the wall such as fire extinguishers or sinks should be at a suitable height so that they do not cause obstructions.
- Lifts should provide ease of access for moving patients in and out. They should be designed to accommodate at least two people and a trolley as well as any equipment needed by the patient such as drains, drip stands etc
- There should be an adequate number of passenger lifts and a service lift for food trolleys, waste removal etc. Not only do all patients have to be transported by lift but much of the work on the operational side depends on using the lifts eg porters, cleaners, catering, laundry.
- Access for the disabled should be taken into account as many patients could be classed as disabled. Provision should be made for wheelchair access into and within the ward eg



There is never enough car parking space in a hospital.'

into bathrooms, toilets etc. These should also be designed so that a patient can use them without help.

- Corridors should be wide and uncluttered so that nurses and physiotherapists can walk patients around for exercise.

Wayfinding

- Effective signposting to wards, exits and canteens is needed in a hospital, as there are many users, visitors, patients and even staff who are not regulars and who are therefore unfamiliar with the layout.
- Information boards on wards giving details of patients and their location make it easier for staff not based on the ward eg occupational therapists, social workers, physiotherapists, to identify them.

Location

- There should be easy access from the ward to other functions used by the patients and staff, eg for a surgical block to intensive care, x-ray, and operating theatres.
- Ideally linked services should be near to each other eg operating theatres, intensive care, surgical wards.
- The work of the doctors is made easier when a ward block is self-contained eg all the surgical beds or those for a particular specialism are together in one place.

7. Health and safety factors

Adequate provision for personal security

- Security is difficult to maintain in a hospital building, as it is open to members of the public and thefts from staff, patients and visitors do occur.
- Safety alarms should be provided on wards for staff.
- The position of the sister's office and nurses station also have an influence on ward security. The nurses' station cannot be positioned at the entrance to the ward to watch the entrance as it should be located at the centre of the ward to give maximum visibility of the patients. However if there is a reception desk this should be placed at the ward entrance or there should be a desk at the entrance to the building to provide security.
- Security in the grounds is important for staff. There are a large number of female employees in a hospital and work patterns often necessitate late or night working.

Adequate provision for safety including fire safety

- Lack of space, particularly storage space, on a ward can result in equipment being left around in the rooms and corridors increasing the risk of slips and trips.
- Floors should have non slip surfaces
- Lifting and moving patients is an integral part of many jobs on the ward and this can result in back problems. Hoists are not easy to use and require adequate space round the beds. More innovative solutions include the installation of ceiling mounted lifting equipment that enable hooks to be lowered from the ceiling for lifting patients.
- Moving trolleys and beds around is an integral part of the work. Adequate space is required for manoeuvring these to reduce the risk of accidents and back strain.
- Fire regulations are very important in a hospital and have to be taken into account when the building is constructed and when any maintenance work is carried out.
- Attention should be paid to fire risks in the storage of materials, waste etc.

Adequate provision for hygiene/health

- Cleanliness is one of the most important factors for staff and patients. Wash basins should be easily accessible to facilitate frequent handwashing and should be large enough to allow filling of bowls, jugs etc.
- Patients' shower rooms should be provided with basins, mirrors, chairs, shelves for belongings etc.
- There are differing opinions on the advantages and disadvantages of en suite shower rooms that combine toilet, shower and basin. Some staff prefer them as access is easier for the patient and for staff helping them but there are problems eg if someone is using the shower the patients have to look for another toilet. Also if a shower tray is not installed to

'Many patients do not like showers. It is amazing

improve access, the water is not confined. The whole room and its contents can get wet each time it is used and water can leak out under the door.

- An adequate number of hoist bathrooms for each ward, at least one for a ward of 25 patients is needed. There is a move generally in hospitals away from baths to showers but for the frail elderly these are daunting. For many patients their culture involves having baths rather than showers and these can have a positive effect on their health.
- Adequate staff toilet and shower facilities should be provided, easily accessible from the ward but providing privacy from patients.

8. Amenities (features that are 'nice to have' but not directly impacting on business)

Adequacy of catering facilities

- Ward kitchens are important for preparing beverages etc for patients and for the use of staff. They should contain microwaves, hobs, a dishwasher and adequate fridge space. The kitchen should be large enough to store beverage trolleys and should have adequate cupboard space and work surfaces.
- Attention should be paid to ventilation in kitchens as, although little food preparation takes place nowadays, staff sometimes provide snacks for patients eg toast.
- A good hospital canteen is an important amenity for staff and should provide a pleasant place to sit and relax. They appreciate having somewhere where they can go to get away from the ward for half an hour. It is also important to provide a facility to supply food for night staff.

Adequacy of other amenities for staff

- Staff should be provided with a common room on the ward where they can sit away from the patients at breaks without having to go to the canteen. There should be an adequate number of offices, staff rooms etc on the ward eg a doctors' room, sisters' office where they can leave belongings and that can be used as a place for quiet work.
- Changing rooms are designed into hospitals but staff prefer to have the facility on the ward itself as they do not always find time to go out of the building.

Adequacy of other amenities for patients

- Day rooms are very important to enable patients to get away from their beds and to promote social interaction. These should be large enough to accommodate patients and visitors as well as people waiting to be admitted. They should be pleasant and be provided with facilities such as TVs, preferably with earphones so as not to disturb others.
- Patient smoking rooms are also needed and should be well ventilated. Smoking rooms are necessary, as staff cannot stop patients smoking - if they are not provided they will smoke outside.
- Accommodation for visitors is always an issue in a hospital. Many do not place any restrictions on visitors during the afternoon and the noise and disturbance can be very annoying on the ward if a patient is not feeling well. However visitors are good for a patient's well being. The provision of a separate visitors' room where they could sit without disturbing other patients would be particularly helpful for example when children /grandchildren come to visit.
- A relatives' room should be provided on the ward, so that relatives can stay overnight if their relation is very ill instead of sitting in a chair by the bed all night.

9. Image

External appearance

- The image reflected by the appearance of a hospital is very important both for the patients and for PR purposes in general.
- In general it is felt that not enough attention is paid to the aesthetics of a site partly because of space constraints ie the view outside the windows is of a car park or the wall of another block. However image is seen as very important for the recovery of patients, and the feelings of staff and visitors. It was suggested that if car parking was reduced it could be replaced with landscaping.

'It is very important to have staff amenities, a space to go and relax and be people.'

'Hospitals should be aesthetically pleasing, beautiful buildings, not just functional, dull, grey concrete blocks.'

Internal appearance

- The internal finishes on the ward should be of a high standard, for both staff and patient morale.
- The décor should be clean and light - colours, carpets, curtains can have an impact on the atmosphere on the ward.
- Recent research has shown that internal plants and greenery are helpful for patients recovery although there are some health hazards that have to be taken into account eg dust on plants can constitute an infection risk. The use of light wells, atria, green areas can be conducive to a pleasant ambience for patients and staff.
- Some staff feel that there should be something a bit special, rather than purely functional in a hospital. There should also be some sort of team identity eg by asking staff to choose the colours/finishes in their particular ward to give a sense of ownership.

The décor in a hospital is often very 'samey.' 'A wow factor would be good.'

Tidiness

- Hospital wards can often look very messy and cluttered because of the amount of equipment and other items that are in constant use. When these are left in the corridors and around the rooms this can constitute a safety hazard as well as spoiling the look of the ward. (see storage)

10. Features that provide support for carrying out function/job effectively

Adequacy of accommodation/layout

- The nurse's station should be positioned to give a bird's eye view of the ward. To give maximum visibility it should be central to the ward so that the doors of all the rooms can be seen.
- A treatment room for carrying out procedures usually carried out at the bedside, should be provided on each ward. This would give more room for staff to work with all the necessary equipment to hand. It could also reduce cross infection and improve privacy for the patient.
- The reception desk/nurses station is the hub of activity in a ward. However it can be very overcrowded as everyone who carries out any work on the ward uses it — nurses, doctors, physiotherapists, occupational therapists etc. An alternative space should be provided, eg a room or a desk/table for administration work.
- There are varying opinions about the ideal number of beds per room. Some staff prefer 12 bed rooms with the nursing station in the centre so all are visible to the nurses, whilst others prefer 4-6 beds in a room. From the doctors' point of view the ideal is a higher percentage of single rooms because of issues like MRSA and barrier nursing. Single rooms are expensive to nurse as well as to build but they provide a choice and standard which people are growing to expect nowadays. They could also be used for a variety of reasons, not purely clinical need, eg if there is a particularly noisy or troublesome patient. Some patients do like to see what is going on around them and for these the day room could give this flexibility.
- Patients like 4-6 in a room. They feel that this is a good number, not too few or too many as long as they are not too crowded but they dislike mixed sex rooms.

I hate mixed sex rooms. It makes you feel so embarrassed and undignified.

Adequacy of space

- Space in general is often a problem in a ward block - wards, corridors and common areas are often felt to be too small.
- There should be adequate space between patients' beds to provide round the bed access and space for a TV, locker, chair etc as well as for equipment needed at the bedside ie machinery, drips stands, hoists. Restricted space can cause problems for nurses in terms of lifting and handling of patients and requires more moving of furniture when beds or meal trolleys are brought in. Adequate space is also needed for doctors to conduct ward rounds and to carry out procedures at the bedside.
- Adequate space also has an impact upon the mental well being of staff and patients. Cramped conditions on a ward can be very irritating and increase stress.

Adequacy of storage space

- Adequate storage space is an issue in all hospitals as so much equipment and material is kept to hand. A variety of storage space for small/large items, items needed daily and less regularly should be provided on the ward, on each floor and for the whole block.
- Equipment storage is a key issue for physiotherapists who have to keep bulky items such as wheelchairs, frames etc at hand on the ward.
- Storage should be designed to be easily accessible eg shelves should not be too high and should accommodate trolleys etc.
- Secure storage for staff personal possessions eg lockers, cloakrooms, is needed. A ward is very much a public area and thefts can occur.
- There should also be enough space to store patients' personal belongings including clothes and suitcases. Storage should be provided by lockers between beds, hanging space, surface space for flowers etc.

Adequacy of technical facilities for staff

- Services eg nurse calls, alarms etc should be designed into the building at the start as these are vital to the work of the ward.
- Computer access on the ward is becoming increasingly important. These are used to check records and to arrange out patient appointments on the ward.
- There should be an adequate number of telephones ie at least 2 per nurse's station and 2 more dotted around so all staff can get to a phone easily. Phones are very important to the work of a ward and are in use all the time so it is important that they are easily accessible.
- Physiotherapists take patients to practice on the stairs but for health and safety reasons there usually have to be two per patient. Emergency buttons and/or telephones on the staircases at the top and bottom as well as chairs on the landings for the patient to rest could reduce this need and would save staff time.
- There should be an adequate number of electrical sockets by the bed and positioned around the ward to reduce the need for extension leads. A great deal of electrical equipment is used on a ward eg pumps for pain relief, oxygen, ultrasound etc.
- Easy access for oxygen and suction is important. It is preferable when these are built in by the bed to avoid using gas cylinders that take up space.

Adequacy of technical facilities for patients

- Patients like to have access to TV and radio by their beds as it helps pass the time when they are feeling unwell. Many hospitals can provide TVs but sometimes radio reception is not adequate and patients can only receive certain stations even if they bring in their own radio.
- Phone access is very important for the patients but they cannot use mobile phones on a ward. Cordless phones on the ward can be brought to the patient to take calls from relatives. This is very important to the patients, particularly if they do not have family who live near enough to visit.

Adequacy of other equipment eg furniture

- Chairs should be comfortable and of good quality as patients sit in them for long periods. A variety of chairs and footstools should be available to accommodate different sizes of people.
- There should also be enough chairs stored around the ward for visitors. These could include folding ones to use when needed.
- Seating should be provided at strategic points in the corridors for the patients who are beginning to walk around to stop and rest.
- Beds should be low enough for patients can get in and out themselves, but not too low that staff have to bend as this can cause back strain. Controls for adjustable beds should be accessible from the bed so that patients do not have to get out of bed or call a nurse to alter them.
- Some patients suggested that they would like a table and chairs in the ward so that they could sit and eat properly together at mealtimes, instead of by the bed.

When you are feeling ill, particularly for older people you don't want music. It is nice to be able to hear a play or a talk.'

11. Psychological factors that support the culture of the organisation

Support for collaborative working

- In many hospitals there are shared facilities between two or more wards on the same floor eg kitchen, utilities, storage. If there is no culture of sharing this can bring problems caused by ownership issues. If something is left in a mess it is easy to say it was the other ward so no one tidies it up. *'If it is ours, we know it is our responsibility and if it is not done it is down to us. A single ward facility is better.'*

Support for training and development

- A great deal of training of nurses, doctors, physiotherapists etc takes place on a ward. Some teaching space should therefore be provided eg a syndicate training facility or a side area where issues can be discussed with students.

Support for confidentiality/privacy

- Maintaining confidentiality when dealing with patients is very important in the work of a ward. A specific area on the ward to talk privately eg for doctors to speak to families of patients, or for medical staff to discuss a case should be provided. This should be in addition to the sister's office, which is often in use by members of staff on their breaks, or doing paper work.
- Privacy is important for patients. Often on a ward, beds are very close to each other and this can be off putting for the patients.
- Screens/curtains around beds are important for maintaining some degree of privacy but require enough room round the bed to be used effectively.
- Privacy should also be taken into account in the design of shower room/toilet doors so that when the door is opened other people cannot see inside, eg if a member of staff goes in to help.

You know that people can hear but if the beds are very close it is worse. It is bad when the doctors/nurses are seeing to you or talking to you about things. '

Communication and consultation

When considering the construction of a new ward or hospital block it is important to consult all end users at the appropriate time to allow them to exert genuine influence over decision making. In the case of a hospital project, end users include:

- Medical staff and managers— nurses, doctors, physiotherapists etc
- Administrative staff — receptionists, ward clerks
- Patients
- Operational staff — porters, cleaners
- Estates and maintenance personnel
- Management including HR, Finance Director, Chief Executive

The project team employed should be experienced in hospital construction and there should be on going dialogue throughout the project between the end users and the project team. Where there are differing priorities, these should be discussed and acceptable compromises reached.

Hospital staff feel that they should be involved early at the briefing stage. However they find it hard to envisage from the plans what a building will look like in reality. In order to address this issue at Kingston, when the maternity block was being designed, the hospital instituted a series of walk rounds to help them to do this, ie a mock up to help them to determine what would improve the service for staff and patients.

In this case, the building had to be completed in such a short time that it was accepted that there was not enough time for adequate consultation. However the different end user groups are involved in planning for the new development, Phase 5 and have been able to learn valuable lessons from Roehampton that will be used to inform the thinking for the new project.