Inkosi Albert Luthuli Central Hospital

Post occupancy evaluation

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1. HISTORY

FGG Architects were appointed as Principal Agents for the design of the New Durban Academic Hospital in December 1987.

The original brief was for the design of a 1025 bed academic hospital. A design process followed which analysed the brief, examined design options, and culminated in a master plan which had involved all role players. Following acceptance of the master plan, a policy was followed of involving users at all levels in further developing the brief and evolving the design, utilising process of activity data sheets leading to room data sheets, which led to the design of the department and its incorporation into the overall design. The intention was to ensure the 'buy in' of all who would be responsible for the success of the hospital.

There followed an all too familiar pattern of stop-start over the next six years. The Master Plan Report was submitted to the Department of Works and the Department of Health in December 1988. The Sketch Plan Report was submitted to the Department of Works and the Department of Health in December 1989. On completion of the design development in April 1991 the project was put on hold, in response to a national moratorium declared by the Department of Health.

On 7 June 1993 the moratorium was lifted, and instructions were issued for work to proceed. Documentation then proceeded to the point at which tenders could be called, but at the end of 1994 the project was again placed on hold.

In December 1995, approval was given by National Cabinet to proceed with construction. The approval from Cabinet was subject to bed numbers being reduced from 1025 to 800, with separate approval for a 56 bed burns unit. At the same time the nature of the hospital changed from an undergraduate teaching hospital to a highly specialised tertiary/quaternary central hospital to service KwaZulu Natal and half of the Eastern Cape. A revised brief for the hospital was not available.

It was therefore decided to call for tenders on the basis of the existing documentation, as a Provisional Bill of Quantities. Revised documentation would be prepared and issued as construction proceeded, in accordance with a program incorporated as part of the contract.

Neither the Department of Health nor the Department of Works had the resources to produce the revised brief. The Principal Agent took over this responsibility, liaising with the user departments, and reporting to MANCO, who approved the principal decisions.

The tender was awarded to Murray and Roberts, at a cost of R453 963 200 on 7 June 1996. The contract required completion by 6 December 1999, subject to extensions of the contract period which became due in terms of the conditions of contract. The eventual contract completion date for the whole of the contract was 15 September 2000 at a final cost of +- R640 000 000. The majority of the project was completed on time with the final stages of construction completed on achieved on 15 March 2001.

In December 1999 proposals were invited by the Department of Health for consultants to draw up tender documents for a private service provider to enter into a Public Private Partnership, for the equipping and provision of non-medical services over a 15 year contract. The contract was awarded to the Saicog Consortium, who proceeded to draw up documentation for the Public Private Partnership tender.

Bids for the Public Private Partnership were invited to be submitted by the end of February 2001, with the anticipation of announcing the results at the end of March. The successful bidder was the Impilo Consortium, comprising Drake and Scull, Siemens, and AME. Impilo was nominated as the preferred bidder at the end of March 2001, the final contract being signed on 5 February 2002, the effective opening date being five months after the signing of the contract, that is July 2002, approximately two years after effective completion.

From appointment to opening was almost 15 years. Medical technology changes rapidly, and over such a period there were significant changes in healthcare policy. However, there was a major review of the hospital prior to commencing construction, and a further review at completion on the appointment of the private service provider.

2. DESIGN PROCESS

At the master plan stage certain design principles were evolved, and it is against these that the success of the hospital must be assessed, notwithstanding the 14 year time gap involved.

The design principles established were as follows:-

- the hospital was to be designed for people, and be human in scale
- there was to be a maximum awareness of the outdoors
- circulation was to be horizontal, with minimum reliance on lifts
- the principle of the Intensive Medical Services Zone was to be paramount

The Intensive Medical Services Zone was a stated requirement of the brief. It was defined as 'those services which are crucial to the welfare of the seriously endangered patient must be located in close proximity'. Departments making up the Intensive Medical Services Zone were identified as a core of the operating theatres, with direct access from the Trauma Unit and the Delivery Unit, close access to Radiology, and feeding to the Intensive Care Units.

The Inkosi Albert Luthuli was the third major new hospital commissioned in South Africa, following the new Groote Schuur and Johannesburg General. Both its predecessors take the form of huge structures, involving massive walking distances within the building, with all the wards located above the building. The design team, led by FGG Architects, was adamant that the Durban hospital would not be the same.

Having established the needs, the design team embarked on a series of visits to hospitals in this country, North America, and Europe. The aim was to build a hospital that would match world standards, whilst being contextually South African. Lessons were learnt from many places. The University Hospital in Iowa had a significant influence; in the way a large hospital achieved a sense of human scale and identity, with spaces of varying character throughout. Canadian hospitals showed what could be done when money (from oil revenues) is no object, whilst some of the English hospitals achieved success on a far more modest scale. Europe and Germany in particular were the source of the latest in technology, whilst closer to home, St.Mary's at Marianhill, and Murchison at Port Shepstone showed that a caring and dedicated staff is probably the most important feature of all.

3. DESIGN

If people were to be paramount, how was this to affect the design? Firstly, despite its size, the building was to have a human scale, and not appear as a mega-structure. People should be able to move around as far as possible without relying on lifts, retaining a sense of location. To this end there should be a link to the outdoors, and thus the wards were to be built on the ground, and not on the roof of the main building.

The Inkosi Albert Luthuli Hospital therefore evolved as a low-rise structure, with the wards located off to the side. Advantage was taken of the slope of the site to enter on level three, of the four levels, at the middle of the building. This is the major circulation level of the hospital, for outpatients, patients being admitted, and access to the adjacent laboratory building. The facilities requiring access by the majority of users, comprising of the major outpatient departments, are located on this level.

Visitors to the wards would enter the appropriate ward block from this main circulation level, and move to the appropriate level within the block.

Level 4 is the primary inpatient level, accommodating theatres, intensive care units, and therapy departments. In addition certain outpatient departments do not have a high patient load. Inpatients being moved to theatres, or for therapy treatment, are taken to level 4 in the ward block, then move to the appropriate department without passing through major public areas.

Service to the hospital takes place at level 1. The major service departments, including Stores, Kitchen, CSSD, Central Cleaning, and Plant Rooms, are located on at this level. The mortuary is also located on level 1. Service circulation takes place on this level, with service lifts opposite each ward block, for service to the various wards and the main block. Level 2 is primarily a staff level, permitting staff to circulate separated from the patients and public.

The principles of the Intensive Medical Services Zone were met by locating appropriate departments in proximity over two levels. Space requirements indicated a two storey solution, plus operational constraints required certain components at main circulation level 3, with other components at the inpatient circulation level 4. Thus Theatres are at level 4, with direct access to intensive care units, and access from the delivery suite. Trauma is at main circulation level 3, with Radiology at the same level, but with direct dedicated lift access to Theatres and the rooftop helicopter pad.

4. EVALUATION – DESIGN PRINCIPLES

Overall the design principles appear to have been met. In most instances where there are shortcomings, they can be traced to changes in policy from that envisaged at the design stage.

4.1 Design for People

The overall impression is that the public and patients are not intimidated by the size of the hospital, and there has been a very positive feedback from patients, public, and staff. When approaching the hospital from close quarters, one is only conscious of a quarter of the building, and entering in the centre, the distance to all parts remains modest. Walking distances from the entrance to the most distant department are approximately 40% of those at Johannesburg General, or Groot Schuur, where the entrance is at one end of the building. The patient or visitor enters a spacious well-lit foyer, from which the main hospital street leads off in both directions. This foyer creates a very good first impression, and often elicits comments that it is like entering a hotel. Where the hospital street intersects the foyer there are large windows overlooking terraces and the gardens, which give a point of identity as people move around the hospital. This also provides a focal point at level 4, where the hospital street enters the double volume space.

Visitors to the hospital generally appear to be able to find their way around without difficulty or undue reliance on signage.

The main hospital street has not achieved the level of activity and vitality originally envisaged. At the design stage it was hoped that the hospital street would be a lively active area, with spaces envisaged for flower stalls, newspaper stands and the like, as one would encounter in a shopping centre. Whilst there is a general buzz in the foyer which houses a coffee shop, this does not extend beyond into the hospital street. This may be due to the change in nature of the hospital from a general undergraduate teaching facility to a highly specialised referral hospital, resulting in far fewer users, coupled with a change in policy from the very open nature of the institution envisaged at the design stage plus the fact that the hospital is not yet fully open.

It is unfortunate that policy did not permit a budget for artwork, as a relatively modest amount could have a huge impact. The professional team did procure some artwork following an exhibition held in conjunction with a major AIDS conference in Durban, which together with the contractor funded the framing and hanging in the main hospital street. However there is scope for much more.

The one category of users not well catered for is those brought for treatment from other hospitals on a daily basis. Inter-hospital transport generally operates on a single daily service, with the result that patients may have a significant wait on arrival, or prior to departure. A significant number of these patients are stretcher cases, or very ill. It was intended that there would be a suitable designated area, furnished and screened within the main foyer. This provision was not included in the brief of the service provider, but even if provided it would probably not have been adequate. In retrospect, a holding ward should have been provided for patients awaiting transport, with dedicated toilet and utility room provision.

4.2 Outdoor Awareness

The use of large windows with low sills throughout all inpatient areas, and a policy of having beds at right angles to the external walls, has ensured that there is good visual communication with the outdoors and appreciation of well landscaped and maintained gardens. All ward areas overlook gardens, away from vehicular and service areas. This has also enhanced the working environment of staff. The wards generally have a light, airy and pleasant feel.

Within outpatient areas, preference was given to locating consulting rooms on external walls, for the benefit of natural light and view. This has resulted in most offices within the various clinics being internal, and this is not popular. Whilst the decision to give preference to consulting rooms is correct, the downside of internal offices could possibly have been alleviated by providing windows into the corridors.

Similarly the waiting areas within clinics are internal. This was considered acceptable, as the intention was to operate on a strict appointment system, to reduce waiting periods. This, however, has not happened, with patients tending to arrive at the same time, particularly those referred from other hospitals. As a result, a significant amount of time may be spent waiting. Under these circumstances, it would have been preferable for waiting areas to have natural light, but this would have been at the expense of consulting rooms.

4.3 Circulation

In terms of circulation, the design intentions have been achieved. Major circulation takes place on level 3 with patients being admitted and visitors entering the ward block at this level. Seventy five percent of the wards are within one floor of the access level, and a large proportion of people walk as opposed to using a lift. It should be noted that the staircases within the ward blocks are open and obvious, and the lifts are low speed with slow acting doors, as are appropriate to a hospital, which further encourages those able, to use the staircase.

Similarly the main staircase between levels 3 and 4 is an open staircase within the main concourse, and this is used by a high proportion of people moving between these levels. Other staircases, which are enclosed as fire stairs and identified by signage, are not used to any great extent.

The circulation is designed so that bedbound patients being moved around the hospital to theatres and such-like, do not have to be taken through busy public areas. Rather they are taken within the ward block to the operating floor at level 4, where they can be moved without being exposed to outpatients and visitors. Deceased patients are moved to the mortuary without being taken through major populated areas.

Service takes place without significant impact on patient or public. Lateral movement takes place at level 1, along the main service corridor, to the appropriate service lift, and then into the ward or to the appropriate department on each level. There is minimal use of the passenger lifts for service.

The design of the hospital gave precedence to public transport, with a bus and taxi rank adjacent to the main entrance. However, a policy decision at completion stage excluded public transport from the site. From the site entrance to the hospital entrance is a significant distance and climb, and a convenient pedestrian route was not provided. The problem has been addressed to an extent by providing a shuttle bus service from inside the gate to the entrance. Vehicular circulation at the entrance is also not operating as envisaged. It was intended that patient transport from between hospitals would discharge patients within the porte cochere, which was designed to accommodate these vehicles, recognising the need to regulate the potential people/vehicle conflict. In practice, these vehicles are using the route intended for private vehicle drop off, which was not designed for large vehicles.

4.4 Intensive Medical Services Zone

Facilities serving patients in a critical condition were designed in terms of the Intensive Medical Services Zone. The space requirements for the departments making up the Intensive Medical Services Zone dictated that it be designed on two levels. The core facility, the Operating Theatre Suite, is located on level 4. Immediately adjacent are the Delivery Suite, the Neonatal Nursery, and the Intensive Care Units. On level 3 below are the Trauma Unit, with direct access for ambulances, and the Radiology Department, which requires major access from the Outpatient Departments located at this level. The two levels are connected by dedicated staircases and lifts, which also connect to the helipad directly above.

This close relationship works extremely well. However, despite the very close relationship between theatres and ICU's, there is a degree of concern at having to move patients, and serious consideration should be given in future hospitals to providing a short stay ICU, for a stay of up to 24 hours, within the theatre complex. The Cardiac Catherisation Lab, which was a late addition to the requirements, whilst located on level 4, falls outside the immediate Intensive Medical Services Zone.

A subsequent addition to the hospital and the Intensive Medical Services Zone, was a burns unit. Neither the Trauma Unit, nor the Burns Unit, have yet been commissioned, but there is concern that the Burns Theatres are attached to the Trauma Theatres and located in the adjacent ward block, which involves moving patients through the main circulation routes on level 3, albeit in the quietest zone. The alternative would be to locate the Burns Theatre within the Burns Unit. At the design stage there was much discussion around this type of issue, with great reluctance on the part of the Department of Anaesthetics to permit a situation whereby inexperienced anaesthetists could be working in a location where experienced anaesthetists were not on immediate call. Thus the Burns Theatre was attached to the Trauma Theatres.

5. EVALUATION - DEPARTMENTS

5.1 Ward Design

The wards were designed to conform to the overall design principles, but in addition specific principles were identified to be met in the design. These were:-

- there was to be maximum visibility of patients by staff
- walking distances were to be kept to a minimum
- there was to be a constant awareness of the presence of staff by the patients.

The wards are located in four pods to the east of the main building, with two wards per floor, based upon a typical 32 bed unit. Each ward unit takes the form of a cluster, with the patient rooms grouped around a central nurses' station. Immediately in front of the nurses' station are two six-bed bays for the most

seriously ill patients, whilst to the side are two larger eight-bed bays for the less sick. There is excellent visibility from the nurse's station to all the bays, and to the entrance into the ward. Single rooms are on either side of the six-bed bays, located so that the staff carrying out their normal duties can be aware of the patients in these rooms. The service rooms are grouped behind the nurses' station, closest to the bays occupied by the most seriously ill, which minimises the walking distances for the staff.

The design has worked well, and is generally being used as intended, following the principle of progressive nursing whereby the sickest patients are located closest to the nurses' station. In Paediatrics, concern has been expressed that the nurses' station is too far from the 8-bed bays, and needs a sub-nurses' station. This was done in certain instances, but primarily where sub-disciplines shared a ward. However, the facility is available for a sub-nurses' station to be added in any ward. The cluster of service rooms behind the nurses' station comprising of dirty utility, store, and procedure room, have proven efficient. However, in Paediatrics, where several specialist disciplines share a ward, the procedure room is under pressure in that certain disciplines carry out fairly lengthy procedures, which blocks the use of the room for other patients.

Whilst the ward design has generally proven to be very successful, there are issues of concern. The two wards on each floor share a day room. This has the potential for cross infection in instances where differing disciplines share the facility, and in retrospect it would be preferable to have dedicated day rooms.

There are two general shortcomings relating to staff issues which relate largely to policy decisions which have proven to be impractical. Staff tea facilities are shared, with a common tea lounge on alternate floors, shared by four wards. This was in accordance with a general policy that tea facilities would not be located within individual units, but is not popular. There is the valid concern that staff, particularly during staff shortages, cannot afford to leave the unit for a tea break.

The second issue concerns office provision. Policy was that no department would be housed in its entirety at IALCH, and therefore office provision was limited. At each ward level, a Consultants' Office was provided to be shared. This has not worked, and in practice consultants are permanently based at the hospital and require an office. The situation becomes more critical in wards occupied by several specialities, where a number of consultants are involved. The result is that any suitable space is taken over as an office. The situation has been exacerbated by the requirements of the private service provider staff, who are accommodated within the building.

5.2 Operating Theatre Suite

The main operating theatre suite consists of sixteen theatres, in two groups of eight. Planning is on a single corridor principle, with pairs of theatres sharing a scrub room, an induction room per theatre, and either a shared or dedicated setting room. Each group of theatres is accessed via a holding, with change rooms off to the side, and there is a recovery room per group, inter-leading.

The Theatre Sterile Supply Unit is located between the two groups. Beyond the theatres are storerooms and tea lounges. Overall the theatre complex is working well, and the staff is generally very satisfied.

The holding areas work well. It was intended that patients would be transported on beds, but this is generally not happening. Staff changing facilities are under pressure. Staff numbers are significantly higher than anticipated, plus the policy of staff sharing, rather than having a dedicated locker, does not work, at least as far as the doctors are concerned.

The induction rooms are not used for the purpose intended, as there is neither the staff required, nor the duplication of anaesthetic equipment. There is some use for anaesthetic preparation, such as IV lines or anaesthetic blocks. However the question must be asked, could this space not have been better used by providing larger setting rooms? Despite having been the subject of detailed discussion and mock-ups, the setting rooms are somewhat tight, although this is partially the result of not being used as intended. Some induction rooms are in fact being used as second setting rooms.

The operating theatres are 6.4m x 6.4m, amounting to 40 m2, and following detailed discussion with the users, were all of equal size. Each theatre is equipped with two height adjustable swing arm pendants, one of which is equipped as the anaesthetic pendant, and one as the surgeon's pendant. Comments from users is that they are much better than fixed pendants or wall services, but that pendants with an articulated arm would have given even more flexibility, as would standardisation of the two.

The size of the theatre was subjected to detailed study, both on drawings and model mock-ups, with input from all users. The size was reassessed and confirmed prior to hand-over. However, some six years down the line with changes in technology, theatres are proving tight for some procedures. This can be attributed to the increased use of scopes, and more people in the room than was envisaged. Normally, there would be a minimum of nine staff in a theatre, with an average of thirteen, but there can be in excess of twenty-five at any one time, made up as follows:-

Anaesthetic team	4 – 10: Senior & Junior Registrar, Anaes Tech, Anaes Nurse, Students.
Surgery team	3 – 10: Prof + Consultants, Registrar, Medical Students
Nursing team	2 – 5: Scrub Sister, Circulating Nurses, Post Theatre Basic Course Sisters.

In certain disciplines, for example Orthopaedics or Paediatric Cardiac Surgery, there are occasions when two operating teams work simultaneously on a patient.

The numbers could perhaps be reduced by better use of closed circuit television. At present, whilst all theatres have cameras in the operating lights, only four theatres have panoramic room cameras. The original intention was that these four theatres would be used primarily for teaching purposes, but this is not practical, and it would be better to have panoramic cameras in all theatres. However there would always be certain students who needed to be in the theatre.

At the stage of completion, the size of the cardiac theatres was questioned by the private service provider, and was re-assessed with the users, who confirmed satisfaction with the size. Despite the opinion of the users, two theatres were increased in size to 6.4m x 8.5m (55m2), by extending into the induction and setting room. Although the increased space has been appreciated, the loss of the setting room is a problem. Consideration is being given to encroaching into the corridor, to reinstate the setting room, but this would probably lead to other problems affecting other theatres and general circulation.

There are two recovery rooms, which are interleading. Services are suspended at the head of the bed, following the principle developed for the ICU. The rooms are generally being used as intended, and comments from users generally relate to detailed operational matters. The original policy decision was that all ventilated patients would go directly to ICU, which is located immediately adjacent to Theatre. This is currently being questioned, and there is a feeling that it would be preferable to have a short stay (max 24 hr) ICU facility within the theatre complex.

There has been a degree of change of usage, much of which comes down to human nature being stronger than planning criteria. Some offices, for planning reasons, were located internally, whilst certain storerooms and back-up facilities were located on external walls, and in these instances there has been a certain amount of swapping. A valid comment is that staff lounges are depressing, in that they are standard rooms equipped with basic furniture. A modest expenditure on décor and good furniture would produce a significant return in staff morale.

5.3 Intensive Care Units

The typical ICU unit is comprised of ten beds, including two isolation units. The units are paired, with shared support and staff facilities between the two. There is good space around

each patient, with services suspended in a double sided horizontal trunking over the head of the bed. To each side of the bed is an adjustable suspended unit for housing monitors and equipment. This unit was developed specifically for IALCH, and has proved to be very practical. Access to the head of the patient is good, providing nursing staff do not position the ventilator behind the bed, where it is out of the way of normal nursing activities.

The overall design of the ICU took consideration of the basic design principles, and all ICU,s have good visual connection with the outdoors. There has been a comment from some users that there should be screens between patients, to reduce the potential for cross infection, but this is questionable as it would restrict staff visibility and circulation.

The staff lounge opens onto a terrace, which is much appreciated in such a stressful working environment.

5.4 Outpatient Clinics

The design of the Outpatient Clinics follow a standard pattern, of a central waiting space, with consulting rooms leading off, and procedure rooms and back-up facilities behind. The consulting rooms generally are standard, measuring 4.3m x 3.2m, and were developed involving a large cross section of users, making use of models and full size mock-ups.

Experience in use is generally positive, and where problems have been encountered, these are generally the result of circumstances not envisaged at the design stage. It was intended that the hospital would operate on a strict appointment system, and waiting spaces were specified accordingly. The appointment system has not materialised, with the result that certain clinics are having to accommodate considerably more patients waiting than the space was intended for.

The most acute situation is the shared Neurology, Neurosurgery, Neurophysiology Clinic, a late addition to the hospital, which exacerbates the difficulties arising from the failure of the appointment system. Additional chairs are provided in the waiting room, which results in difficulty manoeuvering patient trolleys into the consulting rooms. In addition, overflow seating is provided in the corridors which, whilst being spacious enough to allow this, detracts from the patient environment. A better solution could be to design an additional waiting area within the corridor, for which there is space, which would look intended rather than stop gap.

Comments from individual clinics generally point to the fact that changes always occur in the way that a facility is used, and that there are advantages in providing standardised facilities which will permit the maximum flexibility in use.

6. PUBLIC PRIVATE PARTNERSHIP SERVICE PROVIDER

All non-medical support services are provided by a private service provider, the Impilo Consortium. At commissioning stage, the service provider was responsible for commissioning and equipping the building, which included the following:

- commissioning the various building services, after handover under the building contract
- supply of all furniture and soft furnishing
- supply of all medical equipment, and instruments
- provision of IT network and equipment

Ongoing services include:

- maintenance of the building
- maintenance and refreshment of furniture and soft furnishing
- operation and maintenance of building systems, including air-conditioning, electrical services. and steam installation
- supply of medical gases and maintenance of installation
- maintenance and refreshment of medical equipment and instruments
- provision of sterile supplies and maintenance of equipment
- food service
- laundry and household supplies
- cleaning service
- security
- portering and transport
- maintenance and refreshment of IT services/equipment

The system seems to be working well. The building is well maintained, and the response from users is positive.

The decision to enter into a public private partnership with a service provider was taken very late in the day. The decision was supported by the Professional Team, and experience to date validates the decision. This was the first South African hospital to follow this route, and there are obviously lessons to be learned from the experience. There are two major services where the service provider departed from the policy envisaged by the design team, namely Food Service and Laundry.

The kitchen and food service was designed for cook-chill, but the service provider has opted for a traditional food service. This has resulted in equipment in the kitchen such as blast chillers not being utilised, and regeneration kitchens at ward level being used only as a servery. The service provider also opted for primarily electric equipment with very little use of steam. Also the service provider has opted not to use the locally operated laundry, built on the site. Although the laundry provides service to King Edward Hospital, it is operating far below capacity. This has a knock-on effect of reducing demand for steam, added to the lack of demand from the kitchen, so that the boiler house is not operating efficiently.

In future, it can be assumed that the decision to use a private service provider would be taken at an early stage, and then this type of situation would not arise. On the basis of experience at IALCH the following recommendations are offered:

- ensure compatibility between the building contract and the service provider contract, so that there is no conflict between the obligations of the two parties. The building contract should recognise the involvement of the service provider at the completion stage, and the service provider contract should be compatible with the conditions of the building contract.
- include the design team in the development of the brief for the service provider, in order to ensure that design and planning concepts are carried through. It is important to ensure that specifications for furniture and equipment extend beyond basic functional requirements. There are certain areas where something extra is required, particularly in the foyer, or locations where a first impression is created, or where relief from stress is important. For example, staff lounges in Theatre should have a calm relaxing atmosphere, whereas at present they are somewhat depressing.
- extend the brief of the professional team to include liason with the service provider during the commissioning period, to ensure that design intentions are understood and implemented. There have been occasions where it has been found that members of staff are unaware of certain features and technical aspects of the building.
- a general comment from staff is that there was inadequate consultation in selection of equipment and instruments, and difficulty in obtaining additional equipment.
- appoint the service provider at an early stage, prior to the completion of the building contract, so that there is the opportunity for incorporating their requirements prior to completion of the building.

7. CONCLUSION

After almost four years of use, an evaluation of the hospital indicates that the original design objectives have largely been met. The extended design, development, and construction period, which saw major changes of use and policy, allowed the design to be reassessed on an ongoing basis which has accommodated these changes, along with technological progress. The design process involved a very high level of user input from all categories of staff, which has resulted in a high degree of buy-in from those staff involved, and a general level of satisfaction now that the hospital is in use. The high level of user input was certainly a major factor in facilitating the ongoing re-design process as the building developed.

There will always be room for improvement and lessons to learn, and perhaps post occupancy evaluations should become a standard procedure, to be funded by the Client Department.

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