Disseminating good practice (DGP): developing an exemplar layer for AEDET Evolution and ASPECT design evaluation tools

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University of Sheffield School of Architecture

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Graduate nurses and graduate architects from the University of Sheffield

The research team, February 2007

Contents

1 Introduction

This is a report by the University of Sheffield School of Architecture on the research study commissioned in December 2004 by NHS Estates (now the Department of Health Estates and Facilities Division). The report is about research promoting and supporting good design by building, consolidating and expanding the evidence base. The growing body of knowledge from 1000 scientific studies confirms that good design in the healthcare environment can make a significant contribution not only to the quality of lives of patients and their carers, but also to actual health outcomes. This empirical research indicates that good design can reduce the running costs of healthcare facilities, by making recruitment easier, reducing medical errors, lowering staff turnover and reducing length of hospital stay. A major database of this worldwide research has been established by the research team at the University of Sheffield and was published by NHS Estates as the 'Safer Environment Database' and on the Department of Health's Knowledge Information Portal (KIP).

The Sheffield Architectural Healthcare Environment and Patient Outcomes Database is available as an interactive CD-ROM and is also accessible directly via KIP. The evidence from the database has been progressively collated, summarised and engineered into a series of tools for NHS trust clients and their designers to use. AEDET (Achieving Excellence Design Evaluation Toolkit) Evolution and ASPECT (A Staff/Patient Environment Calibration Tool) are now both in common usage for the assessment of existing and new buildings. The IDEAs (Inspiring Design Excellence and Achievements) tool is still under development and is designed for use at the briefing stage. IDEAs is intended to aid NHS trusts, healthcare architects and design consultants by providing inspiration and informing design briefs. Using the latest evidence, it gives design tips based on the movement of patients, staff and visitors through a hospital. Some nine activities are featured in the tool at the moment – arriving and entering, beds, circulating, waiting, consult/treat, bathing/changing, socialise, spiritual, and retail/refreshment.

Need for an exemplar in ASPECT/AEDET Evolution design tools

ASPECT/AEDET Evolution tools have been developed as having a hierarchical structure consisting of layers/sections/headings/statements. The AEDET Evolution tool allows a comprehensive overall environmental assessment of buildings. AEDET Evolution has three main sections with ten headings per section and a total of 60 statements under the headings. By scoring these statements it is possible to summarise how well a healthcare building complies with best practice. The three main sections of "Impact", "Build Quality" and "Functionality" are designed to cross-refer where possible to the pan-industry (construction) tool DQI (Design Quality Indicators; refer to www.dqi.org.uk). Figure 1 shows the framework of the three main sections and the constituent AEDET Evolution headings.

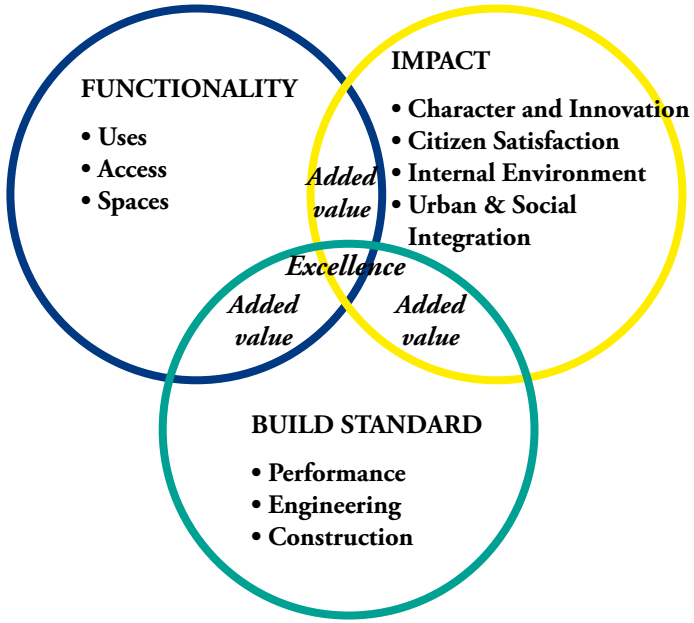
The ASPECT tool represents section C of AEDET Evolution. It allows a more detailed evaluation of the building against the latest known research on the impact of design on patient and staff satisfaction and patient health outcomes. ASPECT is comprised of the eight headings indicated in Table 1, with a total of 31 statements.

Table 1 C Staff and patient environment sections

C STAFF AND PATIENT ENVIRONMENT
PRIVACY, COMPANY AND DIGNITY
VIEWS
NATURE AND OUTDOORS
COMFORT AND CONTROL
LEGIBILITY OF PLACE
APPEARANCE
FACILITIES
STAFF

The multi-layered approach of ASPECT/AEDET Evolution, consisting of the scoring, guidance and evidence layers, addresses concerns about complexity of design tools while facilitating ease of use by both the more experienced user and the novice. For example, the

Figure 1 AEDET Evolution sections and headings (October 2004)



IMPACT

This section deals with the extent to which the building creates a sense of place and contributes positively to the lives of those who use it and are its neighbours. There are four headings in this section:

A CHARACTER AND INNOVATION
B FORM AND MATERIALS
C STAFF AND PATIENT ENVIRONMENT
D URBAN/SOCIAL INTEGRATION

BUILD QUALITY

This section deals with the physical components of the building rather than the spaces. This is therefore what might be thought of as the more technical and engineering aspects of the building. It asks whether the building is soundly built, will be reliable and easy to operate, will last well and is sustainable. It is also concerned with the actual process of construction and the extent to which any disruption caused is minimised. There are three headings in this section:

E PERFORMANCE
F ENGINEERING
G CONSTRUCTION

FUNCTIONALITY

This section deals with all those issues to do with the primary purpose or function of the building. It deals with how well the building serves these primary purposes and the extent to which it facilitates or inhibits the activities of the people who carry out the functions inside and around the building. This section has three headings:

H USE
I ACCESS
J SPACE

more experienced user may not need to refer to the guidance layer because he/she is already familiar with it and, similarly, users interested in the evidence may consult the evidence layer in order to direct them to the research evidence upon which each of the heading is based. The multi-layered approach has allowed linking electronically through hypermedia of ASPECT/AEDET Evolution tools on the Department of Health website.

ASPECT/AEDET Evolution design tools are now used regularly in connection with both PFI (Public Finance Initiative) and ProCure21 methods of building procurement within the NHS. The Department of Health E&FD guidance notes that the purpose of AEDET is to provide:

- assistance to Primary Care Trusts (PCTs) and NHS Trusts to develop design specifications for their schemes;
- a methodology for evaluating and assessing the design of healthcare building proposals;
- assistance to NHS Estates in performing their approval role on behalf of the Department of Health;
- the basis for a national benchmarking system of design quality for healthcare buildings.

However, this research study and exercise was intended to look at the extent to which research data can be collected, analysed and findings applied to underpin an exemplar layer comprising images of healthcare projects and their design features. This would include overcoming shortcomings and problems associated with perceptions of visual material. In particular, when looking at a particular visual architectural image, different viewers often pick out different features within the image. The study suggests a way of dealing with this problem which we refer to as the "green door" effect.

Overall, we have sought to make the ASPECT/AEDET Evolution tool usable by both professionals and laymen using familiar language and first-hand experience while avoiding the need for detailed specialist knowledge or back-up calculations. In particular, this is so as to reduce the responses of "don't know" to various statements. An exemplar layer would address these concerns, thereby making ASPECT/AEDET Evolution more robust, user-friendly and easier to use.

An exemplar layer would build on the positive comments (+) identified during the testing of AEDET Evolution, which included the following:

- "Checklist nature ensures that basic fundamental issues are addressed as part of the design process";
- "Provides a good discipline or basis for objective analysis";
- "Provides a good structured framework for analysis";
- "It is a powerful tool for evaluation and forms a very effective source of communication to all including bidders".

An exemplar layer would seek to address the less favourable comments (–) identified during the testing of AEDET Evolution, which included the following:

- "The tool suffers from a lack of definition of what is good design";
- "Can be compromised by a lack of information and details";
- "Its usefulness rather depends on how far the detail of the design has progressed";
- "It may still be difficult to capture the 'wow' factor in design."

Furthermore, current best design practice in UK healthcare has been well documented through such devices as the old NHS Estates Design Portfolio. However, there are now many projects that offer exemplars in some ways from overseas. During the development of ASPECT it was always envisaged that an exemplar layer could be developed at a later date in order to provide useful pointers to designs or design features in the NHS Estates Design Portfolio. The architectural images would be selected to show particularly good examples of resolving design issues dealt with under each of the headings. In this project we sought to establish highly-rated design exemplars against a wide range of the AEDET Evolution and ASPECT statements. These exemplars are thought to be in many ways complementary to the Design Portfolio, which is project-based and thus makes the good and bad features of the exemplars less easy to see to the uninitiated.

2 Methodology

This study uses photographs as a tool to clarify an understanding of what a particular statement refers to. This use of photographs in design studies is not new. Previous research has often used photographs as a tool for examining preference for landscape and clarifying an understanding of what is aesthetically pleasing. Much of the landscape preference literature has focused on identifying features or qualities included in the photograph which seem to correlate to either preference decisions or to high scenic beauty scores (for example Herzog 1985, 1989; Gimblett 1990; Patsfall et al 1984; Bernaldez et al 1987; Ruddell et al 1989). These studies have also produced some consistent results. For instance, when people categorise various landscapes, the division between what is rural and what is urban is strong (Ulrich 1977; Uzzell and Lewand 1990), with rural places being preferred to urban places (Zube 1973; Hodgson and Thayer 1980; Zube et al 1983; Hull and Revell 1989). The presence or absence of water is also a clear division (Zube 1973; Zube et al 1983; Blankson and Green 1991). Its presence seems to increase scenic value. A study by Scott and Canter (1997) demonstrates that there is a theoretical and empirical distinction between evaluations of pictures and evaluations of places they represent.

In this study, images of healthcare projects were to be shown to groups of graduate nurses and graduate architects. These students were to be asked to assess the images against the relevant AEDET Evolution and ASPECT scales. A selection of images was to be found for each relevant scale. Among this selection were several that were expected by the research team to be highly rated. The results of the exercise were expected to show the extent to which the scales work in terms of psychometrics. Other interesting results were expected to show the extent to which the scales produce homogeneity and the extent to which architects and nurses can operate the scales and may agree or disagree about them. However, a very important outcome was also to be a selection of images that are highly rated and which can form an exemplar layer to the AEDET Evolution/ ASPECT tools.

The methodology covered the following:

- A selection of 15–18 suitable UK NHS projects were initially to be identified by the University of Sheffield and these schemes were then to be agreed with Jonathan Millman and Sue Taylor at the Department of Health.
- The selected schemes were to be properly photographed to the standards required. This was to be conducted under a separate contract between Department of Health Estates and Facilities Division and an approved photographer. However, the photographer was to work closely with the University of Sheffield as follows:
  - The University of Sheffield was to train the photographer in the use of AEDET Evolution and ASPECT scales.
  - In each case the photographer was to be shown the kinds of image content required for each scale under investigation.
  - The University of Sheffield was to accompany the photographer on four site visits to further reinforce what was expected from the images.
- The University of Sheffield was to then analyse, collate and document all images and prepare presentations to student nurses and student architects.
- Presentations were to take place following dummy-run versions of these in November and December 2005 to validate the methodology. For both groups of nurses and architects conditions needed to be identical.
- Data from evaluations collected from matching samples of approximately 12 student nurses and 12 architectural students for all scales were to be analysed and presented.
- Conclusions were to be drawn from the exercise.
- Final report and files of the exemplar layer images and scores were to be prepared.

Notes

Criteria for selection of participants:

- Participants representing a sample of typical occupants or users of healthcare facilities and settings.
- Participants with some training or background in design education and therefore representing the expert view point.
- Participants without any formal design education or training and therefore representing the non-expert viewpoint.
- Participants without the baggage of too much experience.

Criteria for the selection of schemes/projects

- NHS schemes (PFI, non-PFI etc) in order to disseminate good practice in the UK.
- UK schemes to allow users of AEDET Evolution and ASPECT to be able to visit them if necessary.
- European schemes to facilitate learning from non-UK schemes.
- US or other international examples to encourage considerations from abroad.

The initial selection of projects consisted of the following seven schemes:

1. Bristol Royal Hospital for Children.
2. James Cook University Hospital, Middlesbrough.
3. Kidderminster Minor Injuries Treatment Centre.
4. Leicester City West Braunson Integrated Health and Social Care Centre (Primary Care).
5. Norfolk & Norwich Hospital.
6. Nottingham Breast Institute.
7. Woodhaven Mental Health Unit, Loperwood, Calmore.

A lack of images for most of the seven selected projects soon led to a change of strategy to one which allowed issues below to be addressed.

Criteria for selection of ASPECT and AEDET Evolution statements

Early on during the project when we were considering statements in both ASPECT and AEDET Evolution we realised that not all statements can easily be matched with images or photographs. In some cases this was not necessary because the statements were already clear and unambiguous and in others it was simply not sensible to do so. We therefore employed some basic rules for selection of statements, notably:

1. Statements which could easily be matched with images. In this case a statement could be matched with a single image or several images.
2. Statements which, if matched with images/ photographs, would lead without confusion to exemplars whose content would highlight good design features and thereby help promote or disseminate good design practice.
3. Statements which did not involve mathematical calculations.
4. Statements which were not about compliance with guidance or recommendations.

All this meant that we were able to use during the exercise 40 out of a total of 47 statements in ASPECT (that is, 85 per cent) and 32 out of a total of 58 statements in AEDET Evolution (that is, 55 per cent).

The seven ASPECT statements which were excluded from the test are:

C4 Comfort and control

C4.2 Patients and staff can easily control the artificial lighting.

C4.4 Patients and staff can easily control the temperature.

C4.6 The design layout minimises unwanted noise in staff and patient areas.

Facilities

C7.2 Patients can have a choice of bath/shower and assisted/unassisted bathrooms.

C7.5 There are easy chairs, tables and desks in the patients' spaces.

C7.7 There are easily-accessible vending machines for snacks.

C7.8 There are facilities for patients' relatives/friends to stay overnight.

The 26 AEDET Evolution statements which were excluded from the test are:

F Engineering

F1 The engineering systems are well designed, flexible and efficient in use.

F2 The engineering systems exploit any benefits from standardisation and prefabrication where relevant.

F3 The engineering systems are energy-efficient.

F4 There are emergency backup systems that are designed to minimise disruption.

F5 During construction, disruption to essential services is minimised.

G Construction

G1 If phased planning and construction are necessary, the various stages are well organised.

G2 Temporary construction work is minimised.

G3 The impact of the building process on continuing healthcare provision is minimised.

G4 The building can be readily maintained.

G5 The construction is robust.

G6 The construction allows easy access to engineering systems for maintenance, replacement and expansion.

G7 The construction exploits any benefits from standardisation and prefabrication where relevant.

H Use

H1 The prime functional requirements of the brief are satisfied.

H2 The design facilitates the care model of the Trust.

H3 Overall the building is capable of handling the projected throughput.

H4 Work flows and logistics are arranged optimally.

H5 The building is sufficiently adaptable to respond to change and to enable expansion.

H6 Where possible, spaces are standardised and flexible in use patterns.

I Access

12 There is adequate parking for visitors and staff cars, with appropriate provision for disabled people.

I7 The fire planning strategy allows for ready access and egress.

J Space

J1 The design achieves appropriate space standards.

J2 The ratio of usable space to the total area is good.

J3 The circulation distances travelled by staff, patients and visitors are minimised by the layout.

J4 Any necessary isolation and segregation of spaces is achieved.

J5 The design makes appropriate provision for gender segregation.

J6 There is adequate storage space.

Table 2 40 out of 47 ASPECT statements were tested in the exercise

C STAFF AND PATIENT ENVIRONMENT		
C1 PRIVACY, COMPANY AND DIGNITY	5	5
C2 VIEWS	5	5
C3 NATURE AND OUTDOORS	3	3
C4 COMFORT AND CONTROL	6	**3**
C5 LEGIBILITY OF PLACE	6	6
C6 APPEARANCE	8	8
C7 FACILITIES	8	**4**
C8 STAFF	6	6
Total	**47**	**40**

Table 3 32 out of 58 AEDET Evolution statements were tested in the exercise

IMPACT		
A CHARACTER AND INNOVATION	5	5
B FORM AND MATERIALS	5	5
C STAFF AND PATIENT ENVIRONMENT	8	8
D URBAN/SOCIAL INTEGRATION	4	4
BUILD QUALITY		
E PERFORMANCE	4	4
F ENGINEERING	5	0
G CONSTRUCTION	7	0
FUNCTIONALITY		
H USE	7	1
I ACCESS	7	5
J SPACE	6	0
Total	**58**	**32**

Issues

- Standards and content of photographs/images.
- Quality of the photographs/images – for example, the quality of the photographs may not easily indicate the design features we would like to see.
- Copyright and permissions to publish the photographs/images.

In the end we settled for a combination of the following to address all the above issues and ensure that an adequate number of images would be obtained for AEDET Evolution and ASPECT statements:

- Images by a photographer commissioned by the Department of Health.
- Images provided by the Department of Health from their photographic library.
- Images provided by NHS trusts.
- Images obtained from architects/designers.
- Images obtained from product manufacturers and other trade literature.

Table 4 Examples of the type of images requested from the photographer

PATIENT BEDROOMS
1. View from patient bed to and through the external window looking at good natural scenes (gardens, water, sculptures, woodlands etc). [Eg view of Poole Harbour from patient bedrooms, ie picture postcard views]
2. View from patient bed looking towards and through the external window showing human activities and recreation.
3. View of single patient room from patient bed showing the door or way out.
4. View from patient bed looking towards the bathroom and shower area.
5. View from patient bed looking towards the ceiling noting interesting patterns and artwork.
6. View from patient bed looking towards other bed spaces.
7. View from visitors' easy chair looking towards the patient bed.
8. View of patient bed and chair close together.
9. View of patient bed and lifting hoists (mobile or ceiling-mounted).
10. View from visitors' overnight fold-up bed/couch looking towards the patient bed (made up) showing bed linen, fabrics and furnishings.
11. Views of multi-bed areas from the patient bed.
12. View from a patient bedhead control console looking towards blinds/curtains.
13. View from the patient bed towards the television (ceiling-mounted, wall-mounted or mounted on an extendable arm).
14. View from the patient bed looking towards display shelving showing "get well" cards, flowers, ornaments etc.
15. View from the patient bed to writing desk/chair or dressing table/chair.
16. View from the patient bed towards the cupboard and personal storage area.
WAITING, RECEPTION, SEATING, MILLING AND WORKING AREAS
1. View out of large windows with low cill heights and high window heads (evoking "a room with a view").
2. View of two people sitting and talking quietly.
3. View of several people sitting around a coffee table and side tables with magazines, flowers, ornaments, table lamps etc.
4. View of a sofa arrangement with cushions, throws, rugs etc creating a comfortable and sleek "homely" look and feel.
5. View of stylish corner seating arrangement with cushions, throws, rugs etc.
6. Views of groups of people in waiting areas (compare with the BA lounge at the airport).
7. View looking towards the reception desk from patients' and visitors' waiting areas.
8. View from waiting areas showing TV and plasma screens for information.
9. View from waiting area showing the way in and way out of the building.
10. View of shops, coffee areas from waiting areas.
11. View of minimalist designs indicating simple shapes, clean lines and contemporary features.

3 Data collection and analysis

Two one-day sessions were held for the graduate architects on Wednesday 6 December 2006 and for graduate nurses on Wednesday 13 December 2006. These followed dummy runs of the one-day sessions held earlier in the year.

Below is what happened on each of the one-day sessions, notably on Wednesday 6 December 2006 and Wednesday 13 December 2006 in the meetings room 15.3 (15th floor) of the Arts Tower, School of Architecture:

a. **Objectives of the day** – Participants/subjects were presented with photographs (six photographs corresponding to each statement in AEDET Evolution and ASPECT) and then asked to score these on a scale of 1 to 6, providing their responses on a form (see Appendix for the response forms). Participants were continually reminded not to base their score on the quality of the photographs/images. The duly completed response forms were collected at the end of each session. These were then coded and analysed, forming the main output of this event.

b. **Participants** – A sample of 12–15 students of nursing in their later years of study were invited to take part in the study to match a sample of architectural students in order to facilitate comparison.

c. **Venue** – This took place in the meetings room 15.3, Arts Tower. Two projectors were used to show the six photographs and the individual photographs alongside the guidance associated with each statement or heading from AEDET Evolution and ASPECT. Participants were therefore always reminded of the guidance material and could refer to it when making their assessments.

d. **Times** – Each session commenced at 9.30 am on the respective Wednesday, with the final session of the day involving a discussion and allowing participants to provide feedback and reactions to the whole exercise. Each of the exercises ended at about 16.00 hours.

e. **Lunch** was provided. Also coffee, tea and refreshments were provided throughout the day starting at 9.00 am to ensure that participants were alert and that their concentration was maintained for the duration of the exercise.

f. **Payment** – Participants were paid for taking part in the event. The University forms were issued at the end of the day to allow participants to provide bank details and enable the remuneration to be paid directly into their bank. Overall the inducements were intended to obtain the right sort of participation and interested participants.

Table 5 Examples of projector 1 and 2 AEDET Evolution presentations to both graduate nurses and architects

A Character and innovation

A1 There are clear ideas behind the design of the building.

A2 The building is interesting to look at and move around in.

A3 The building projects a caring and reassuring atmosphere.

A4 The building appropriately expresses the values of the NHS.

A5 The building is likely to influence future healthcare designs.

There are clear ideas behind the design of the building.

Guidance

A1 There are clear ideas behind the design of the building.

The design should embody a clear and coherent vision confidently communicating its function and aspirations through its physical elements.

2

There are clear ideas behind the design of the building.

Projector One (AEDET Evolution) **Projector Two (AEDET Evolution)**

Table 6 Examples of projector 1 and 2 ASPECT presentations to both graduate nurses and architects

C1 Privacy, company and dignity

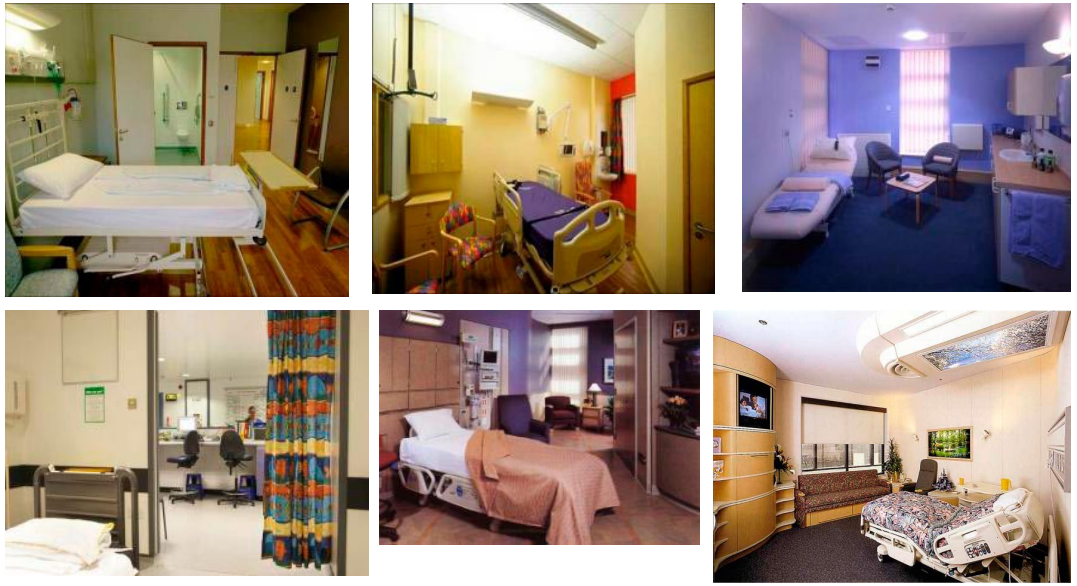
C1.1 Patients can choose to have visual privacy.

C1.2 Patients can have a private conversation.

C1.3 Patients can be alone.

C1.4 Patients have places where they can be with others.

C1.5 Toilets/bathrooms are located logically, conveniently and discreetly.



Patients can choose to have visual privacy.

Guidance

C1.1 Patients can choose to have visual privacy.

Either patients have their own individual room or can be screened off from others they share with or, if mobile, can easily find a private space. Privacy also means that activities can continue uninterrupted. For example the opening of a door should not expose the occupants of the room to passers-by outside. Although curtains can achieve some degree of visual privacy they may not necessarily guarantee dignity and almost certainly will not achieve acoustic privacy. Clearly individual rooms satisfy this feature whereas multiple bed bays do not naturally do so. In the case of for example four bed bays the arrangement of beds in space, distances between beds and the provision of screens can all help to offset to some extent the natural loss of privacy and dignity.

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Patients can choose to have visual privacy.

Projector One (ASPECT)

Projector Two (ASPECT)

The scores from the response forms were coded and analysed (See extract below or the appendix for the entire set of response forms).

Table 7 Extract of the AEDET Evolution response form and of the ASPECT response form for use by both graduate nurses and graduate architects (see Appendix for the entire set)

AEDET Evolution

A1 There are clear ideas behind the design of the building

No	Image(s)	Scale					
		1	2	3	4	5	6
1							
2							
3							
4							
5							
6							

ASPECT

C1.1 Patients can choose to have visual privacy

No	Image(s)	Scale					
		1	2	3	4	5	6
193							
194							
195							
196							
197							
198							

Feedback session

Comments from the feedback session include the following:

- The participants found the one-day session hard work but worthwhile and enjoyable.

  "We feel we have learnt something about design quality in healthcare buildings" (Graduate architect).

  "We will definitely be involved in capital schemes within our NHS Trust" (Graduate nurse).

- There was general agreement among all participants in the two study groups that ASPECT statements are far easier to understand than those in AEDET Evolution. They could easily relate to the ASPECT statements. Some participants suggested than AEDET Evolution be reformulated or redefined. Others participants were of the opinion that they had little or no knowledge of the issues raised by the AEDET Evolution statements. Overall the AEDET Evolution statements seemed to take longer to complete than the statements.
- Participants in the two study groups confirmed that they seemed to have greater prior knowledge and experience of issues addressed by ASPECT statements than those raised by AEDET Evolution statements.

4 Results and discussion

The data from the response forms was coded and then analysed. What follows is an analysis of the results and a discussion with reference to the validation of AEDET Evolution and ASPECT as evaluation tools.

Significance of response

We have first tested the scores given for each image against each statement with each group for significance using the χ-square test. What this test shows is whether or not there are significant differences in the numbers of people giving each rating. If there were no differences and the results were purely random we would expect to find equal numbers voting for rating 1 and score 2 and so on up to rating 6. We used the normal $p < 0.05$ test to decide whether the results were significant. The majority of images in both AEDET Evolution and ASPECT showed significant differences. In other words the groups of respondents showed significant tendency to rate the images in a particular way. Overall this is an encouraging result.

Where an image did not attract significantly skewed ratings this indicates that the group as a whole could not collectively make up their mind about what rating to give it. In such cases this could be for three main reasons. First, the image did not give the respondents enough information of the kind they needed to make the assessment against the statement. Secondly, the statement itself might be unclear. Finally, there simply were personal variations in response. If the second or third reasons were responsible we would expect to see a similar pattern for all or most of the six images tested against the statement. Of the 32 statements tested in AEDET Evolution only two showed more than three images, with no significant results for the architects and six for the nurses. Of the 40 statements tested in ASPECT only two for the architects and seven for the nurses had more than three images showing a lack of significance. We shall return to the possible problems with this relatively small number of statements in a later section. However, at this point it is worth noting that in all cases the nurses showed slightly less ability to arrive at consensus than the architects. This theme will be taken up again in the next section using different statistics.

Consistency of response

A key question that we want to try to answer with this data is the extent to which both AEDET Evolution and ASPECT elicit consistent responses. For each group of respondents (architects and nurses) we have calculated the mean and standard deviation response to each image (usually six) shown against each statement in both AEDET Evolution and ASPECT. For each statement we have averaged the means and standard deviations, arriving at an overall mean and standard deviation for that statement.

Remembering that these responses were all given under identical conditions but entirely independently, we can now test our question. If the responses were random we would expect to see equal numbers of responses in each of the six possible response score slots. Such an event is of course highly unlikely, but it is the theoretical extreme position of random inconsistency. If we imagine a sample size of 18 (very near to our sample), this would result in three people voting for each of the six categories on the six-point scale. Such a situation would lead to a standard deviation of 1.7. The ultimate in extreme inconsistency however would be a result in which nine people voted for scale point 1 and nine voted for scale point 6, with none in between. Such a distribution would lead to a standard deviation of 2.5. The other extreme from this would be all 18 voting for the two central points on the scale equally, and this would lead to a standard deviation of 0.5.

In general the standard deviations tend to be around 1 or just below. This thus indicates a high degree of consistency. In general we can conclude that within in each group the scores are very consistent. The usual assumption for a normal distribution is that just less than 70% of the population is found within the range plus or minus 1 standard deviation from the mean. In simple terms, for our data here this is very encouraging. Effectively we can say that between two-thirds and three-quarters of the scores on average are either the mean score or the score below or above. Thus if an image gets an average score of 3, most of the scores will have been 2, 3 or 4.

Given that inevitably some individuals tend to score highly while others habitually score lower, this seems to suggest overall that there is a high degree of consensus in the scoring. In general, then, within their two groups our respondents seem to be agreeing largely about the scores that should be given. The architects and nurses showed no significant difference in their degree of consensus.

This in turn enables us to look in detail at the relatively small number of images where there was less than the usual level of agreement. We shall discuss both images and statements where this might be the case in a later section.

Agreement between the groups

Next we correlated the average scores of the architects and nurses within each statement across the six images presented. What this shows is not the degree of consensus within each group as above, but whether architects and nurses agree about which images should get the high or low scores against each statement. We produced correlations for every statement and then averaged these for both AEDET Evolution and ASPECT. The overall grand correlation for AEDET Evolution statements is 0.3 and for ASPECT statements is much higher at 0.7. In fact in AEDET Evolution some 37.5% of statements yielded a strong correlation (0.7 or greater) whereas in ASPECT this was almost double at 70%. It clearly looks as if ASPECT achieves much higher levels of agreement between architects and nurses than does AEDET Evolution.

Overall the AEDET Evolution score raises some concerns which we address below.

Variation in AEDET Evolution correlations

We have investigated these correlations further by producing average correlations for each section of AEDET Evolution statements. These are shown in Table 6.

Table 6 Variations in AEDET Evolution correlations

Variations in AEDET Evolution correlations	
Section	**Correlation**
A CHARACTER & INNOVATION	0.5
B FORM & MATERIALS	–0.2
C STAFF & PATIENT ENVIRONMENT	0.5
D URBAN/SOCIAL INTEGRATION	0.0
E PERFORMANCE	0.3
H USE	0.1
I ACCESS	0.6

What this indicates is that while there is overall a small correlation here it is:

- almost non-existent in sections

  B FORM AND MATERIALS

  D URBAN/SOCIAL INTEGRATION

  H USE;
- moderate in sections

  A CHARACTER & INNOVATION

  C STAFF & PATIENT ENVIRONMENT

  E PERFORMANCE;
- reasonable in section

  I ACCESS.

It would appear therefore that for a substantial part of AEDET Evolution we should provisionally not expect groups as different as architects and nurses to be seeing the same things.

We can investigate this further by comparing these correlations with those found in ASPECT. Remember that each section in ASPECT expands one of the statements in AEDET Evolution section C. We can therefore compare the correlation found for the single statement in AEDET Evolution section C with the average for its corresponding whole section in ASPECT. These results are shown below (Table 7).

Thus while the ASPECT sections all show consistently high correlations, the AEDET Evolution statements are extremely variable. In particular, statements C5 (The building is clearly understandable) and C6 (The interior of the building is attractive in appearance) in AEDET Evolution show virtually no correlation between architects and nurses. Statement C6 (The interior of the building is attractive in appearance) might be said to offer too much opportunity for individual interpretation and personal taste. The corresponding statements in ASPECT, however, manage on average a respectable correlation of 0.5.

Statement C5 (The building is clearly understandable) could be difficult for the non-expert to interpret correctly. This also requires considerable ability to look around and imagine the building as a whole. The corresponding statements in ASPECT unpack this into six statements that on average get a correlation of 0.6.

Possible future actions with regard to AEDET Evolution

We suggest that, taken together, all these results indicate the benefit of the finer-grain nature of the ASPECT

Table 7 Comparison of AEDET Evolution and ASPECT correlations

Comparison of AEDET Evolution and ASPECT correlations			
AEDET Evolution statement	**correlation**	**ASPECT section**	**correlation**
C1 The building respects the dignity of patients and allows for appropriate levels of privacy and dignity.	0.5	C1	0.9
C2 There are good views inside and out of the building.	1.0	C2	0.7
C3 Patients and staff have access to outdoors.	0.5	C3	0.9
C4 There are high levels of both comfort and control of comfort.	0.9	C4	0.8
C5 The building is clearly understandable.	–0.2	C5	0.6
C6 The interior of the building is attractive in appearance.	0.2	C6	0.5
C7 There are good bath/toilet and other facilities for patients.	0.7	C7	0.7
C8 There are good facilities for staff, including convenient places to work and relax without being on demand.	0.9	C8	0.8
Overall	**0.5**		**0.7**

statements. These appear to be able to generate more shared understanding by different user groups. ASPECT was of course not primarily written for this reason but because there was so much empirical evidence to support all the statements. However, this new data suggests that it may be worth investigating similar expansions of the sections in AEDET Evolution that give poor correlations. We strongly recommend that this should be investigated.

Clearly when AEDET Evolution was under development there was pressure to minimise the number of statements involved in order to reduce the amount of time an assessment would take. At face value this seems a sensible strategy. However, our data here questions that. Firstly it is simply no good reducing the tool beyond the point where the results are valid. Secondly, our data suggests that such reductions may actually be a false economy to some extent. The table of correlations above strongly suggests that decision making and discussion for ASPECT statements would both be far quicker than for AEDET statements. Thus some appropriate expansion of AEDET Evolution may not necessarily result in a longer process.

Differences between architects and nurses

In general the level of agreement overall is remarkably strong in ASPECT and gives considerable confidence in the tool. It is less strong in AEDET Evolution and this is both understandable and we believe capable of remedy. It does however suggest that using AEDET Evolution in a mediated group trying to arrive at consensus is a far more valid method than aggregating ratings given by individuals independently.

It is noticeable that the nurses are slightly more generous overall in their assessments than the architects. This difference is on average 0.6 of a scale point in AEDET Evolution and 0.7 in ASPECT.

Finally the nurses showed less consistency in their marking than the architects who are a slightly more coherent group.

All these differences taken together are not particularly surprising. We were almost always here looking at healthcare facilities so that might appear to favour the nurses. However, the task was always to assess a building and that must inevitably favour the architects. The task required here was much more like ones normally performed by architects than by nurses.

Selection of exemplars

One of the added value benefits of this piece of research was the ability to find images that represent good scores as exemplars for the statements in both AEDET Evolution and ASPECT. This would enable the AEDET and ASPECT tools to have a further (Exemplar) layer added. This would enable user working on a statement in the scoring layer to see examples of high scoring images for statement.

We have used a number of rules to identify potential candidates for this exemplar role. Firstly, the overall mean rating must be above 4. Secondly, this must also be true for both architects and nurses groups.

AEDET Evolution statements needing investigation

- **A1** There are clear ideas behind the design of the building.
  - 4 Images showing no clear result from the nurses. Moderate correlation (0.5) between architects and nurses. Probably too much of an architectural concept for non-experts to understand. The question is: expand or elaborate guidance?
- **A3** The building projects a caring and reassuring atmosphere.
  - No correlation between architects and nurses and four images showing no clear result from nurses. Expand, expand guidance or consider scrapping this statement. It probably may not be need given statement A4 seen to work better and could be seen to incorporate this idea.
- **A5** The building is likely to influence future healthcare designs.
  - Although there is a strong correlation between architects and nurses, the nurses have a weak internal view of this. Consider expanding or elaborating guidance.
- **B1** The building has a human scale and feels welcoming.
  - Actually shows a negative correlation. Consider expanding or elaborating guidance to assist non-experts.
- **B2** The building is well oriented on the site.
  - Similar to B1.
- **B4** The external materials and detailing appear to be of high quality.
  - Only one image showed a clear result for the nurses. This may be too technical a statement for non-experts to make a judgement.
- **B5** The external colours and texture seem appropriate and attractive.
  - No correlation between architects and nurses. Consider elaborating guidance for non- experts?
- All of Section C is already covered by ASPECT in a more reliable and valid form.
- **D1** The height, volume and skyline of the building relate well to the surrounding environment.
  - The nurses gave uniformly high scores to all the images for this question resulting in means ranging only from 4.3 to 4.8. This strongly suggests they are unable to discriminate on this dimension. Consider elaborating guidance.
- **D2** The building contributes positively to its locality.
  - No correlation between architects and nurses. Possibly difficult for non-experts to answer this question without seeing the real place. Consider expanding or removing.
- **D4** The building is sensitive to neighbours and passers-by.
  - Very similar to D2 and in retrospect probably possible to double these two questions together or expand into new section.
- **E2** The building is easy to clean.
  - Not one image produced a significant result for the nurses. This may be the result of too many issues being considered.
- **H7** The layout facilitates both security and supervision.
  - No correlation between architects and nurses. Neither group appear to be able to discriminate here. Could be fault of images presented?

ASPECT statements needing investigation

- **C6.3** The interior has a variety of colours, textures and views.
  - Little correlation between architects and nurses, also nurses have little discrimination. Probably due to the method of presentation of images here. In order to establish this probably far more information is needed.
- **C6.5** The interior has provision for art, plants and flowers.
  - Little correlation between architects and nurses and the nurses showed few significant results. Not clear why nurses were unable to read these images in this case.
- **C6.8** Floors are covered with suitable material.
  - Little correlation and neither group seemed sure how to answer this statement. Perhaps this statement may be too technical for this type of exercise.

Recommended exemplar images

The following images are recommended for use in the exemplar layer against the AEDET Evolution and ASPECT statements.

Recommended exemplars – AEDET

A1 There are clear ideas behind the design of the building.

5

A2 The building is interesting to look at and move around in.

7.1

7.2

9.1

9.2

A4 The building appropriately expresses the values of the NHS.

22

Recommended exemplars – AEDET

A5 The building is likely to influence future healthcare designs.

28.1

28.2

B1 The building has a human scale and feels welcoming.

36.1

36.2

B3 Entrances are obvious and logically positioned in relation to likely points of arrival on site.

43

46

45

Recommended exemplars – AEDET

B4 The external materials and detailing appear to be of high quality.

50.1

50.2

B5 The external colours and texture seem appropriate and attractive.

58.1

58.2

C1 The building respects the dignity of patients and allows for appropriate levels of privacy and dignity.

61

Recommended exemplars – AEDET

C2 There are good views inside and out of the building.

67.1

67.2

69.1

69.2

C3 Patients and staff have access to outdoors.

73.1

73.2

78.1

78.2

78.3

Recommended exemplars – AEDET

C4 There are high levels of both comfort and control of comfort.

81.1

81.2

C5 The building is clearly understandable.

85

C6 The interior of the building is attractive in appearance.

95.1

95.2

96.1

96.2

Recommended exemplars – AEDET

C7 There are good bath/toilet and other facilities for patients.

97.1

97.2

97.3

99.2

102.1

102.2

C8 There are good facilities for staff, including convenient places to work and relax without being on demand.

103.1

103.2

D1 The height, volume and skyline of the building relate well to the surrounding environment.

111.1

111.2

Recommended exemplars – AEDET

D2 The building contributes positively to its locality.

115.1

115.2

115.3

D3 The hard and soft landscape around the building contribute positively to the locality.

125

E1 The building is easy to operate.

138.1

138.2

E3 The building has appropriately durable finishes.

150

Recommended exemplars – AEDET

H7 The layout facilitates both security and supervision.

160

I4 The building will weather and age well.

175

I6 Outdoor spaces are provided with appropriate and safe lighting indicating paths, ramps and steps.

190

192.1

192.2

192.3

Recommended exemplars – ASPECT

C1.1 Patients can choose to have visual privacy.

195

197

198

C1.2 Patients can have a private conversation.

204

C1.3 Patients can be alone.

206

208.1

208.2

210

Recommended exemplars – ASPECT

C1.4 Patients have places where they can be with others

211

212

213

216

C1.5 Toilets/bathrooms are located logically, conveniently and discreetly.

217.1

217.2

C2.1 Spaces where staff and patients spend time have windows.

223

224

225

227

Recommended exemplars – ASPECT

C2.2 Patients and staff can easily see the sky.

230.1

230.2

231

C2.3 Patients and staff can easily see the ground.

235.1

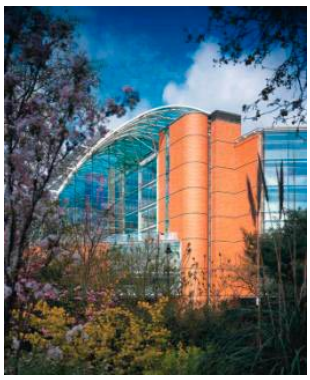
235.2

237

239.1

239.2

C2.4 The view is calming.



249.1

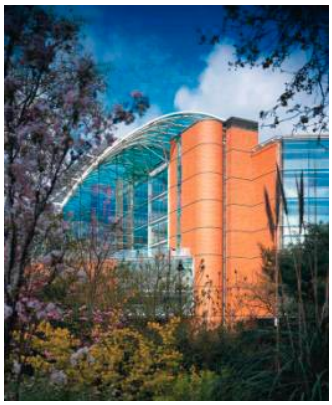
249.2

Recommended exemplars – ASPECT

C2.5 The view is interesting.

247

248



249.1

249.2

C3.1 Patients can go outside.

253

254.1

254.2

254.3

258.1

Recommended exemplars – ASPECT

C3.1 Patients can go outside.

258.2

258.3

C3.2 Patients and staff have access to usable landscaped areas.

259

262.1

262.2

C3.3 Patients and staff can easily see plants, vegetation and nature.

265.1

265.2

265.3

Recommended exemplars – ASPECT

C3.3 Patients and staff can easily see plants, vegetation and nature

269.1

269.2

C4.1 There is a variety of artificial lighting patterns appropriate for day and night and for summer and winter.

273.1

273.2

C4.3 Patients and staff can easily exclude sunlight and daylight.

277

281

C4.5 Patients and staff can easily open windows/doors.

283.1

283.2

Recommended exemplars – ASPECT

C5.1 When you arrive at the building, the entrance is obvious.

289

290

291

292

C5.2 It's easy to understand the way the building is laid out.

296

C5.3 There is a logical hierarchy of places in the building.

301.1

301.2

301.3

301.4

306.1

306.2

Recommended exemplars – ASPECT

C5.4 When you leave the building, the way out is obvious.

307.1

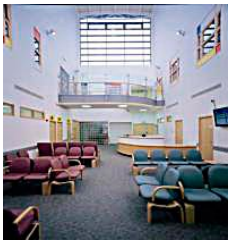
307.2

312.1

312.2

312.3

C5.5 It is obvious where to go to find a member of staff.



315.1

315.2

316.1

316.2

317

318.1

318.2

Recommended exemplars – ASPECT

C6.1 Patients' spaces feel homely.


328


330

C6.2 The interior feels light and airy.


331


332.1


332.2


333


334


335

C6.3 The interior has a variety of colours, textures and views.


339

C6.4 The interior looks clean, tidy and cared for.


343


346.1


346.2

Recommended exemplars – ASPECT

C6.4 The interior looks clean, tidy and cared for.


347.1


347.2


348.1


348.2

C6.5 The interior has provision for art, plants and flowers.


349.1


349.2


353

C6.6 Ceilings are designed to look interesting.


355


357

C6.7 Patients can have and display personal items in their own space.


363

Recommended exemplars – ASPECT

C6.8 Floors are covered with suitable material.


368


370.1


370.2

C7.1 Bathrooms/toilets are provided with appropriate seats, handrails, non-slip flooring, a shelf for toiletries and somewhere to hang clothes within easy reach.


374.1


374.2

C7.3 There is a space where religious observances can take place.


380


382.1


382.2


383.1


383.2


384

Recommended exemplars – ASPECT

C7.4 There is a place where live performances can take place.


385


388.1


388.2

C7.6 Patients have facilities to make drinks.


391


393.1


393.2


394.1


394.2


396

C8.1 Staff have a convenient place to change and securely store belongings and clothes.

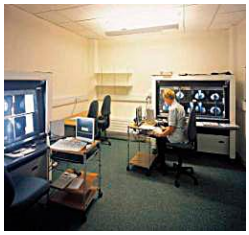

398


399

C8.2 Staff have convenient places to concentrate on work without being on demand.


407.1


407.2


408

Recommended exemplars – ASPECT

C8.3 There are convenient places where staff can speedily get snacks and meals.

409

412

413.1

413.2

414

C8.4 Staff can rest and relax in places segregated from patient and visitor areas.

415.1

415.2

417.1

417.2

419.1

419.2

420

Recommended exemplars – ASPECT

C8.5 All staff have easy and convenient access to IT.

422

424

C8.6 Staff have convenient access to basic banking facilities and can shop for essentials.

430.1

430.2

431.1

431.2

5 Conclusions and future development

There are several conclusions from this study.

Results from the study indicate a fine grain of ASPECT statements indicating consistently high correlations. This reflects reference to empirical evidence.

Participants/subjects from the two study groups (graduate nurses and architects) indicated that the 40 ASPECT statements are easier to understand than the 32 AEDET Evolution statements.

Results from the study confirm that the strategy of expanding sections of the AEDET Evolution has been shown to be a good thing. When AEDET Evolution was under development there was pressure to minimise the total number of statements involved in order to reduce the amount of time an assessment would take. This study suggests that expanding sections of AEDET Evolution may lead to more easily understood statements which might be more quickly responded to. There is strong indication that this would yield more reliable data which would be useful during briefing by NHS trusts, designers and other members of the project team. The strategy could probably be applied to other sections in AEDET Evolution, especially

- **D** URBAN/SOCIAL INTEGRATION
- **B** FORM & MATERIALS
- **H** USE

where there was little or no agreement between our two study groups.

Overall, 16 statements have been shown to need investigation – notably, 80 per cent (13) statements in AEDET Evolution compared to 20 per cent (three) statements in ASPECT. The investigation needs to cover looking in to the nature of the statements, the type of matching photographs and how they are presented.

The exemplars have been selected because we expect groups as different as architects and nurses to be seeing the same things about design quality in these images.

The results of the study confirm that the next stage of getting copyright permissions can proceed to allow the selected exemplars to be published.

The exemplars can be used to provide the basis for a photographic gallery that is a useful reference for the IDEAs generative design tool.

Architects/designers can now be invited to provide comments about their design intentions with regard to the selected exemplars.

AEDET Evolution assessment focus groups, in our experience, currently take 4–6 hours (105 statements, 58 in AEDET Evolution and 47 in ASPECT at two to three minutes a statement). We need to investigate the impact of expanding AEDET sections on this timing. It may be that expanded sections will provide the ability to target specific user groups, as evident when using ASPECT, where ordinary occupants of healthcare premises are often invited to take part in exercises.

A replication of the study should be conducted with different user groups such as doctors and other healthcare workers, versus interior designers or engineers, to expand the number of exemplars.

This study also confirms that ASPECT/AEDET Evolution could be developed further to provide a cohesive framework for NHS trust project teams to refer back to statutes and NHS guidance through the provision of another layer (a Compliance Layer). Our view is that this Compliance Layer could be provided as a separate document in order to avoid AEDET Evolution itself looking cumbersome but following the same structure. ASPECT/AEDET Evolution is a tool specifically directed towards achieving excellence in design rather than ensuring compliance with specific legislation, regulation or guidance. Accurate predictive and performance measures exist and can be used on models and drawings to assess things like amount of storage, size of space, lighting, air quality, temperature, smell, acoustics, energy consumption, environmental conditions, health and safety, access to wheelchair users etc.

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List of schemes/projects for photo shoots

	SOURCE	SCHEME + LOCATION	ARCHITECTS	COMMENTS
1	NHS Acute	Evelina Children's Hospital, St Thomas' Hospital, Lambeth Place Road Client: Guy's and St Thomas' NHS Foundation Trust The landmark feature is its huge glass roof which creates a 4-storey conservatory. 140 inpatient beds including 20 intensive care beds for the most seriously ill children. £41.8m Design and Build Contract	Hopkins Architects	Open in late Autumn 2005 "A hospital that doesn't feel like a hospital"
2	NHS	Great Ormond Street Hospital (GOSH) A new Orangery restaurant built on the roof of a boiler house received the 2005 award. Client: Great Ormond Street Hospital £390k value funded by the Friends of Great Ormond Street charity "The Orangery is a place of serenity dropped into the heart of the hospital, this is architecture as therapy and both architect and client deserve equal credit for it"	SpacelabUK architects	Completed 2004
3		Dublin Dental School and Hospital	ABK	Completed 1998
4		Mater Hospital, Belfast £14m "As well as providing a new entrance to all buildings, old and new, the new facilities accommodate, wards, a day surgery unit other ancillary medical accommodation and a modern coffee dock."	Todd Architects	
5	NHS Primary Care	Lisburn Road Community Treatment and Care Centre, Lisburn Road, Belfast Client: South & East Belfast Trust Procurement: NIHE performance-based partnering £3.8m "A landmark centre for health and social services serving a diverse population of 70,000"	Penoyre & Prasad Architects	Start on site 2003
6	NHS Maternity	Wansbeck Hospital Phase 2 The winner of Best Designed Hospital, 2003 relocates maternity services, plus providing day surgery, outpatients, rehab facilities and a child health clinic, in a two-storey building with ample natural light. A PFI scheme	Reiach & Hall architects	
7	NHS Acute	Hexham General Hospital Client: The Northumbria Healthcare NHS Trust £28m PFI "The hospital has 98 beds (as 27-bed medical wards, 28-bed surgical wards, 10-bed maternity unit, 6-bed CCU), four operating rooms and four radiology rooms".	Jonathan Bailey Associates	
8	NHS Acute	John Radcliffe emergency department, Client: Oxford Radcliffe Hospital NHS Trust	YRM architects	Crowned Best Designed Hospital at Building Better Healthcare Awards 2004
9	NHS	Small Heath Health Centre Client: East Birmingham Health Authority £1.8m "It represents an opportunistic piece of joint commissioning, bringing together a health centre, GP practice and a community mental health centre with 14 acute beds in the same facility within an inner city location"	MAAP Architects	Completed 1994
10	NHS Primary Care	Greenwich Millennium Health Centre, A sustainable approach to community care Client: Greenwich Teaching Primary Care Trust £2.75m	Edward Cullinan Architects	Opened June 2001
11	NHS Acute	Romford Hospital, Oldchurch Park Client: Barking Havering and Redbridge Hospitals NHS Trust £200m PFI	Jonathan Bailey with BDP	Topped out March 2005
12	NHS Acute Mental Health	Chase Farm Hospital, The Oaks Ward Client: Barnet, Enfield and Haringey Mental Health NHS Trust £4.02m	Devereux Architects	Completed 2005
13	NHS Acute	Golden Jubilee Wing Client: Kings College Hospital NHS Trust A large ambulatory care centre £75m PFI	Nightingale Associates	Completed 2002
14		Sir Michael Sobell House Hospice, Oxford Client: Sobell Hospice Charity Cost: £3.3m	Nightingale Associates	Floor area: 1,500m2 Completed 2003
15	NHS Mental health	Woodhaven Mental Health Unit, Southampton Woodhaven is an innovative £7m state-of-the-art adult mental health unit located at Calmore, in the New Forest. Designed in close collaboration with West Hampshire NHS Trust, the unit has been designed to incorporate the views of mental health carers, service users and staff. The 36 bed unit creates a therapeutic setting for patients suffering from a wide range of mental illnesses.	BroadwayMalyan	'Best Mental Health Building' award at the NHS Building Better Healthcare Awards 2004
16	NHS	Glasgow Homeopathic Hospital, Part of Gartnavel General Hospital site, Client: NHS Greater Glasgow "This purpose-built, fifteen bed hospital, which incorporates a therapy garden and art installations is a place of calm, light and healing. A superb project incorporating creativity within tight controls and a fine example for future healthcare buildings to emulate."	MacLachlan and Monaghan	
17		St Joseph's Hospital, Mount Desert, Cork Client: The Sisters of Ben Secours "Domestic scale has been achieved, with all patient areas on one level and splendid views from the lounges at the end of each wing"	BDP	RIBA Award 2003
18	NHS Acute	Hammersmith Hospital Renal Unit, Client: Hammersmith Hospitals NHS Trust	Ansell & Bailey	Completed 2005

AEDET Evolution response forms

A1 There are clear ideas behind the design of the building.

No	Image(s)	Scale					
		1	2	3	4	5	6
1							
2							
3							
4							
5							
6							

A2 The building is interesting to look at and move around in.

No	Image(s)	Scale					
		1	2	3	4	5	6
7							
8							
9							
10							
11							
12							

A3 The building projects a caring and reassuring atmosphere.

No	Image(s)	Scale					
		1	2	3	4	5	6
13							
14							
15							
16							
17							
18							

A4 The building appropriately expresses the values of the NHS.

No	Image(s)	Scale					
		1	2	3	4	5	6
19							
20							
21							
22							
23							
24							

A5 The building is likely to influence future healthcare designs.

No	Image(s)	Scale					
		1	2	3	4	5	6
25							
26							
27							
28							
29							
30							

B1 The building has a human scale and feels welcoming.

No	Image(s)	Scale					
		1	2	3	4	5	6
31							
32							
33							
34							
35							
36							

B2 The building is well oriented on the site.

No	Image(s)	Scale					
		1	2	3	4	5	6
37							
38							
39							
40							
41							
42							

B3 Entrances are obvious and logically positioned in relation to likely points of arrival on site.

No	Image(s)	Scale					
		1	2	3	4	5	6
43							
44							
45							
46							
47							
48							

B4 The external materials and detailing appear to be of high quality.

No	Image(s)	Scale					
		1	2	3	4	5	6
49							
50							
51							
52							
53							
54							

B5 The external colours and texture seem appropriate and attractive.

No	Image(s)	Scale					
		1	2	3	4	5	6
55							
56							
57							
58							
59							
60							

C1 The building respects the dignity of patients and allows for appropriate levels of privacy and dignity.

No	Image(s)	Scale					
		1	2	3	4	5	6
61							
62							
63							
64							
65							
66							

C2 There are good views inside and out of the building.

No	Image(s)	Scale					
		1	2	3	4	5	6
67							
68							
69							
70							
71							
72							

C3 Patients and staff have access to outdoors.

No	Image(s)	Scale					
		1	2	3	4	5	6
73							
74							
75							
76							
77							
78							

C4 There are high levels of both comfort and control of comfort.

No	Image(s)	Scale					
		1	2	3	4	5	6
79							
80							
81							
82							
83							
84							

C5 The building is clearly understandable.

No	Image(s)	Scale					
		1	2	3	4	5	6
85							
86							
87							
88							
89							
90							

C6 The interior of the building is attractive in appearance.

No	Image(s)	Scale					
		1	2	3	4	5	6
91							
92							
93							
94							
95							
96							

C7 There are good bath/toilet and other facilities for patients.

No	Image(s)	Scale					
		1	2	3	4	5	6
97							
98							
99							
100							
101							
102							

C8 There are good facilities for staff, including convenient places to work and relax without being on demand.

No	Image(s)	Scale					
		1	2	3	4	5	6
103							
104							
105							
106							
107							
108							

D1 The height, volume and skyline of the building relate well to the surrounding environment.

No	Image(s)	Scale					
		1	2	3	4	5	6
109							
110							
111							
112							
113							
114							

D2 The building contributes positively to its locality.

No	Image(s)	Scale					
		1	2	3	4	5	6
115							
116							
117							
118							
119							
120							

D3 The hard and soft landscape around the building contribute positively to the locality.

No	Image(s)	Scale					
		1	2	3	4	5	6
121							
122							
123							
124							
125							
126							

D4 The building is sensitive to neighbours and passers-by.

No	Image(s)	Scale					
		1	2	3	4	5	6
127							
128							
129							
130							
131							
132							

E1 The building is easy to operate.

No	Image(s)	Scale					
		1	2	3	4	5	6
133							
134							
135							
136							
137							
138							

E2 The building is easy to clean.

No	Image(s)	Scale					
		1	2	3	4	5	6
139							
140							
141							
142							
143							
144							

E3 The building has appropriately durable finishes.

No	Image(s)	Scale					
		1	2	3	4	5	6
145							
146							
147							
148							
149							
150							

E4 The building will weather and age well.

No	Image(s)	Scale					
		1	2	3	4	5	6
151							
152							
153							
154							
155							
156							

H7 The layout facilitates both security and supervision.

No	Image(s)	Scale					
		1	2	3	4	5	6
157							
158							
159							
160							
161							
162							

I1 There is good access from available public transport including any on-site roads.

No	Image(s)	Scale					
		1	2	3	4	5	6
163							
164							
165							
166							
167							
168							

I3 The approach and access for ambulances is appropriately provided.

No	Image(s)	Scale					
		1	2	3	4	5	6
169							
170							
171							
172							
173							
174							

I4 Goods and waste disposal vehicle circulation is good and segregated from public and staff access where appropriate.

No	Image(s)	Scale					
		1	2	3	4	5	6
175							
176							
177							
178							
179							
180							

I5 Pedestrian access routes are obvious, pleasant and suitable for wheelchair users and people with other disabilities/impaired sight.

No	Image(s)	Scale					
		1	2	3	4	5	6
181							
182							
183							
184							
185							
186							

I6 Outdoor spaces are provided with appropriate and safe lighting indicating paths, ramps and steps.

No	Image(s)	Scale					
		1	2	3	4	5	6
187							
188							
189							
190							
191							
192							

ASPECT response forms

C1.1 Patients can choose to have visual privacy.

No	Image(s)	Scale					
		1	2	3	4	5	6
193							
194							
195							
196							
197							
198							

C1.2 Patients can have a private conversation.

No	Image(s)	Scale					
		1	2	3	4	5	6
199							
200							
201							
202							
203							
204							

C1.3 Patients can be alone.

No	Image(s)	Scale					
		1	2	3	4	5	6
205							
206							
207							
208							
209							
210							

C1.4 Patients have places where they can be with others.

No	Image(s)	Scale					
		1	2	3	4	5	6
211							
212							
213							
214							
215							
216							

C1.5 Toilets/bathrooms are located logically, conveniently &discretely

No	Image(s)	Scale					
		1	2	3	4	5	6
217							
218							
219							
220							
221							
222							

C2.1 Spaces where staff and patients spend time have windows.

No	Image(s)	Scale					
		1	2	3	4	5	6
223							
224							
225							
226							
227							
228							

C2.2 Patients and staff can easily see the sky.

No	Image(s)	Scale					
		1	2	3	4	5	6
229							
230							
231							
232							
233							
234							

C2.3 Patients and staff can easily see the ground.

No	Image(s)	Scale					
		1	2	3	4	5	6
235							
236							
237							
238							
239							
240							

C2.4 The view is calming.

No	Image(s)	Scale					
		1	2	3	4	5	6
241							
242							
243							
244							
245							
246							

C2.5 The view is interesting.

No	Image(s)	Scale					
		1	2	3	4	5	6
247							
248							
249							
250							
251							
252							

C3.1 Patients can go outside.

No	Image(s)	Scale					
		1	2	3	4	5	6
253							
254							
255							
256							
257							
258							

C3.2 Patients and staff have access to usable landscaped areas.

No	Image(s)	Scale					
		1	2	3	4	5	6
259							
260							
261							
262							
263							
264							

C3.3 Patients and staff can easily see plants, vegetation and nature

No	Image(s)	Scale					
		1	2	3	4	5	6
265							
266							
267							
268							
269							
270							

C4.1 There is a variety of artificial lighting patterns appropriate for day and night and for summer and winter.

No	Image(s)	Scale					
		1	2	3	4	5	6
271							
272							
273							
274							
275							
276							

C4.3 Patients and staff can easily exclude sun light and day light.

No	Image(s)	Scale					
		1	2	3	4	5	6
277							
278							
279							
280							
281							
282							

C4.5 Patients and staff can easily open windows/doors.

No	Image(s)	Scale					
		1	2	3	4	5	6
283							
284							
285							
286							
287							
288							

C5.1 When you arrive at the building, the entrance is obvious.

No	Image(s)	Scale					
		1	2	3	4	5	6
289							
290							
291							
292							
293							
294							

C5.2 It’s easy to understand the way the building is laid out.

No	Image(s)	Scale					
		1	2	3	4	5	6
295							
296							
297							
298							
299							
300							

C5.3 There is a logical hierarchy of places in the building.

No	Image(s)	Scale					
		1	2	3	4	5	6
301							
302							
303							
304							
305							
306							

C5.4 When you leave the building, the way out is obvious.

No	Image(s)	Scale					
		1	2	3	4	5	6
307							
308							
309							
310							
311							
312							

C5.5 It is obvious where to go to find a member of staff.

No	Image(s)	Scale					
		1	2	3	4	5	6
313							
314							
315							
316							
317							
318							

C5.6 Different parts of the building have different characters.

No	Image(s)	Scale					
		1	2	3	4	5	6
319							
320							
321							
322							
323							
324							

C6.1 Patients' spaces feel homely.

No	Image(s)	Scale					
		1	2	3	4	5	6
325							
326							
327							
328							
329							
330							

C6.2 The interior feels light and airy.

No	Image(s)	Scale					
		1	2	3	4	5	6
331							
332							
333							
334							
335							
336							

C6.3 The interior has a variety of colours, textures and views

No	Image(s)	Scale					
		1	2	3	4	5	6
337							
338							
339							
340							
341							
342							

C6.4 The interior looks clean, tidy and cared for.

No	Image(s)	Scale					
		1	2	3	4	5	6
343							
344							
345							
346							
347							
348							

C6.5 The interior has provision for art, plants and flowers.

No	Image(s)	Scale					
		1	2	3	4	5	6
349							
350							
351							
352							
353							
354							

C6.6 Ceilings are designed to look interesting.

No	Image(s)	Scale					
		1	2	3	4	5	6
355							
356							
357							
358							
359							
360							

C6.7 Patients can have and display personal items in their own space.

No	Image(s)	Scale					
		1	2	3	4	5	6
361							
362							
363							
364							
365							
366							

C6.8 Floors are covered with suitable material.

No	Image(s)	Scale					
		1	2	3	4	5	6
367							
368							
369							
370							
371							
372							

C7.1 Bathrooms/Toilets are provided with appropriate seats, handrails, non-slip flooring, a shelf for toiletries and somewhere to hang clothes within easy reach.

No	Image(s)	Scale					
		1	2	3	4	5	6
373							
374							
375							
376							
377							
378							

C7.3 There is a space where religious observances can take place.

No	Image(s)	Scale					
		1	2	3	4	5	6
379							
380							
381							
382							
383							
384							

C7.4 There is a place where live performances can take place.

No	Image(s)	Scale					
		1	2	3	4	5	6
385							
386							
387							
388							
389							
390							

C7.6 Patients have facilities to make drinks.

No	Image(s)	Scale					
		1	2	3	4	5	6
391							
392							
393							
394							
395							
396							

C8.1 Staff have a convenient place to change and securely store belongings and clothes

No	Image(s)	Scale					
		1	2	3	4	5	6
397							
398							
399							
400							
401							
402							

C8.2 Staff have convenient places to concentrate on work without being on demand.

No	Image(s)	Scale					
		1	2	3	4	5	6
403							
404							
405							
406							
407							
408							

C8.3 There are convenient places where staff can speedily get snacks and meals.

No	Image(s)	Scale					
		1	2	3	4	5	6
409							
410							
411							
412							
413							
414							

C8.4 Staff can rest and relax in places segregated from patient and visitor areas.

No	Image(s)	Scale					
		1	2	3	4	5	6
415							
416							
417							
418							
419							
420							

C8.5 All staff have easy and convenient access to IT

No	Image(s)	Scale					
		1	2	3	4	5	6
421							
422							
423							
424							
425							
426							

C8.6 Staff have convenient access to basic banking facilities and can shop for essentials

No	Image(s)	Scale					
		1	2	3	4	5	6
427							
428							
429							
430							
431							
432							

ASPECT - instructions v1.10 (an AEDET plugin)
A Staff and Patient Environment Calibration Tool

ASPECT is a tool for evaluating the staff and patient environment in healthcare buildings. It can be used on existing buildings and on the plans for new ones. ASPECT is based on research evidence. ASPECT has 3 Layers:-

The SCORING Layer on which you score
The GUIDANCE Layer that gives more detailed help
The EVIDENCE Layer that points to the research evidence

ASPECT has 8 Headings each of which will produce a score. The 8 Heading scores taken together summarise how well an environment complies with best practice as indicated by the research evidence. The Headings have several statements that taken together build up a score for that Heading.

How to use ASPECT

First decide at what scale you are going to use ASPECT. It can be used to score a single space, for example a ward, a department such as A and E, a complete building, for example primary care centre, or a complex of buildings such as a hospital site. The scale at which you choose to work will probably depend on the level of detail in the information you have available.

Scoring

Work on the SCORING Layer responding to the statements by giving each a score on the 6 point scoring scale.

The GUIDANCE Layer gives a more detailed explanation of the statements and help on the criteria for achieving good scores. The GUIDANCE Layer also helps to interpret the statements in relation to specific building types such as for example primary care or mental health. If you want to consider the Headings in even more detail the EVIDENCE Layer summarises the research evidence that supports each Heading and, where possible, points to the primary published sources.

Once you have scored each statement in a Heading you can arrive at an average score for the whole Heading. Do this taking into account any weighting you may have used. (see weighting) Carry these scores forward to the score summary sheet at the end.

Flags

The score summary sheet has a section that can be used to 'Flag' exceptions to the overall score you have arrived at for the Heading. This is particularly useful where a Heading generally achieves perhaps a very good score but where one or a few spaces are substantially poorer than this score suggests, or vice-versa.

Using the 6 point scoring scale

The best score is 6 and the poorest score is 1. Make full use of all 6 points on the scale. Do not 'save' 1 for an impossibly bad scheme or 6 for a perfect scheme. A score of 6 should be used for the best it is reasonable to expect under the circumstances. Be realistic.

There are two ways of using the 6 point scoring scale.

The first way is to express a level of agreement with the statement. In this case the scores should be used as follows:-

1 virtually no agreement
2 hardly any agreement
3 little agreement
4 fair agreement
5 strong agreement
6 virtually complete agreement

For example take statement 5.1

5.1	When you arrive at the building, the entrance is obvious	◎①② ①②③④⑤⑥

A very obvious entrance would score 6 and a very obscure one would score 1.

The second way to use the scale is to assess the proportion of times that the statement is accurate. In this case the scores should be used as follows:-

1 very rarely
2 seldom
3 occasionally
4 more often than not
5 mostly
6 nearly always or always

For example take this might be used to score many spaces for statement 2.1

2.1	There is a window in patients'/staff rooms	◎①② ①②③④⑤⑥

It will be obvious from the statement which way you should use the scoring scale.

Weighting

On the SCORING Layer each statement may be given a weighting of 0, 1 or 2. This can be used to determine the effect of the statement in arriving at an overall score for that Heading. Normally each statement is assumed to have a weighting of 1.

However if that statement is for some reason not applicable or cannot be used due to lack of information a weighting of 0 can be used to remove it from the calculations. If this is due to inadequate information enter '?' under that column.

Alternatively in some cases a statement may have a greater than usual importance and may be given a weighting of 2 to double its effect in arriving at the score for the Heading.

You may decide for yourself when to use these weightings, perhaps to reflect the care model applying to the building under examination. The GUIDANCE Layer will also give some hints as to particular circumstances or building types where you might consider using double weighting.

ASPECT - Scoring Layer (an AEDET plugin)
A Staff and Patient Environment Calibration Tool

1 PRIVACY, COMPANY AND DIGNITY ①②③④⑤⑥

		?	weight	score
1.1	Patients can choose to have visual privacy		◎①②	①②③④⑤⑥
1.2	Patients can have a private conversation		◎①②	①②③④⑤⑥
1.3	Patients can be alone		◎①②	①②③④⑤⑥
1.4	Patients have places where they can be with others		◎①②	①②③④⑤⑥
1.5	Toilets/bathrooms are located logically, conveniently and discretely		◎①②	①②③④⑤⑥

2 VIEWS ①②③④⑤⑥

		?	weight	score
2.1	Spaces where staff and patients spend time have windows		◎①②	①②③④⑤⑥
2.2	Patients and staff can easily see the sky		◎①②	①②③④⑤⑥
2.3	Patients and staff can easily see the ground		◎①②	①②③④⑤⑥
2.4	The view outside is calming		◎①②	①②③④⑤⑥
2.5	The view outside is interesting		◎①②	①②③④⑤⑥

Notes

3 NATURE AND OUTDOORS ①②③④⑤⑥

		?	weight	score
3.1	Patients can go outside		◎①②	①②③④⑤⑥
3.2	Patients and staff have access to usable landscaped areas		◎①②	①②③④⑤⑥
3.3	Patients and staff can easily see plants, vegetation and nature		◎①②	①②③④⑤⑥

4 COMFORT AND CONTROL ①②③④⑤⑥

		?	weight	score
4.1	There is a variety of artificial lighting patterns appropriate for day and night and for summer and winter		◎①②	①②③④⑤⑥
4.2	Patients and staff can easily control the artificial lighting		◎①②	①②③④⑤⑥
4.3	Patients and staff can easily exclude sun light and day light		◎①②	①②③④⑤⑥
4.4	Patients and staff can easily control the temperature		◎①②	①②③④⑤⑥
4.5	Patients and staff can easily open windows/doors		◎①②	①②③④⑤⑥
4.6	The design layout minimises unwanted noise in staff and patient areas		◎①②	①②③④⑤⑥

Notes

ASPECT - Scoring Layer (an AEDET plugin)
A Staff and Patient Environment Calibration Tool

5 LEGIBILITY OF PLACE ①②③④⑤⑥

		?	weight	score
5.1	When you arrive at the building, the entrance is obvious		◎①②	①②③④⑤⑥
5.2	It easy to understand the way the building is laid out		◎①②	①②③④⑤⑥
5.3	There is a logical hierarchy of places in the building		◎①②	①②③④⑤⑥
5.4	When you leave the building, the way out is obvious		◎①②	①②③④⑤⑥
5.5	It is obvious where to go to find a member of staff		◎①②	①②③④⑤⑥
5.6	Different parts of the building have different characters		◎①②	①②③④⑤⑥

6 INTERIOR APPEARANCE ①②③④⑤⑥

		?	weight	score
6.1	Patients' spaces feel homely		◎①②	①②③④⑤⑥
6.2	The interior feels light and airy		◎①②	①②③④⑤⑥
6.3	The interior has a variety of colours, textures and views		◎①②	①②③④⑤⑥
6.4	The interior looks clean, tidy and cared for		◎①②	①②③④⑤⑥
6.5	The interior has provision for art, plants and flowers		◎①②	①②③④⑤⑥
6.6	Ceilings are designed to look interesting		◎①②	①②③④⑤⑥
6.7	Patients can have and display personal items in their own space		◎①②	①②③④⑤⑥
6.8	Floors are covered with suitable material		◎①②	①②③④⑤⑥

Notes

7 FACILITIES ①②③④⑤⑥

		?	weight	score
7.1	Bathrooms have seats, handrails, non-slip flooring, a shelf for toiletries and somewhere to hang clothes within easy reach		◎①②	①②③④⑤⑥
7.2	Patients can have a choice of bath/shower and assisted/unassisted bathrooms		◎①②	①②③④⑤⑥
7.3	There is a space where religious observances can take place		◎①②	①②③④⑤⑥
7.4	There is a place where live performances can take place		◎①②	①②③④⑤⑥
7.5	There are easy chairs, tables and desks in the patients' spaces		◎①②	①②③④⑤⑥
7.6	Patients have facilities to make drinks		◎①②	①②③④⑤⑥
7.7	There are easily accessible vending machines for snacks		◎①②	①②③④⑤⑥
7.8	There are facilities for patients' relatives/friends to stay overnight		◎①②	①②③④⑤⑥

8 STAFF ①②③④⑤⑥

		?	weight	score
8.1	Staff have a convenient place to change and securely store belongings and clothes		◎①②	①②③④⑤⑥
8.2	Staff have convenient places to concentrate on work without being on demand		◎①②	①②③④⑤⑥
8.3	There are convenient places where staff can speedily get snacks and meals		◎①②	①②③④⑤⑥
8.4	Staff can rest and relax in places segregated from patient and visitor areas		◎①②	①②③④⑤⑥
8.5	All staff have easy and convenient access to IT		◎①②	①②③④⑤⑥
8.6	Staff have convenient access to basic banking facilities and can shop for essentials		◎①②	①②③④⑤⑥

Notes

ASPECT - Score Summary (an AEDET plugin)

A Staff and Patient Environment Calibration Tool

(when using AEDET carry scores forward from here to AEDET)

Bring forward scores from each Heading in the Scoring Layer to the chart below.

FLAGS

List any elements or spaces in the design that are significantly worse (-) or better (+) than the marked standard.

This can be used to record any exceptions to the overall scores that you specifically wish to have noted.

		?	①	②	③	④	⑤	⑥	- Flagged as worse	+ Flagged as better
1	PRIVACY, COMPANY AND DIGNITY		+	+	+	+	+	+		
2	VIEWS		+	+	+	+	+	+		
3	NATURE AND OUTDOORS		+	+	+	+	+	+		
4	COMFORT AND CONTROL		+	+	+	+	+	+		
5	LEGIBILITY OF PLACE		+	+	+	+	+	+		
6	INTERIOR APPEARANCE		+	+	+	+	+	+		
7	FACILITIES		+	+	+	+	+	+		
8	STAFF		+	+	+	+	+	+		

ASPECT - Evidence Layer (an AEDET plug in)

A Staff and Patient Environment Calibration Tool

1 PRIVACY, COMPANY AND DIGNITY

Bibliographic information	Findings	Authors' Conclusions
Baldwin, S., Effects of furniture rearrangement on the atmosphere of wards in a maximum-security hospital, Hospital and Community Psychiatry, Vol. 36, No. 5, May 1985, 525- 528	A time-limited low-cost intervention especially an intervention in the physical environment often achieves favourable results in a facility treating patients with difficulties. In a study of the effects of a short-term environmental intervention alterations were made in furniture rearrangements in ward dayrooms in a maximum-security hospital in the UK. Over a 14-day periods group seating patterns were introduced each day in conjunction with leisure-time resources such as cards and games to promote improvements in the wards' psychosocial atmosphere. The program was implemented through a system of behavioral contracting with ward staff. The findings suggest that the use of such simple low cost techniques can produce modest positive changes in different kinds of ward environments.	The data for intervention wards showed that group furniture arrangements doubled in frequency during the intervention phases; this statistically highly significant increase then decreased during the reversal phase. Dependent variable was the number of group furniture arrangements; other variables were medication rates, seclusion rates, causality incidents, points earned, perception of the ward and nursing reports. The findings also show that rehospitalization patterns differed between various sub-groups of the population. The study suggest that some individuals are more at risk than others which means administrators can use this to take precautions or implement program changes to reduce the risk.
Barnhart, S., K., Perkins, N., H., and J., Fitzsimonds, Behaviour and outdoor setting preferences at a psychiatric hospital, Landscape and Urban Planning, Vol. 42, 1998, 147- 156	This study investigated staff and patient preferences for outdoor behaviours and settings and the relationship between attributes of ideal settings and setting preferences at a 312-bed psychiatric hospital in Guelph, Ontario. 74 subjects (50% staff and 50% patients rated a number of preferred behaviours and ranked a range of environmental settings on the hospital's 48 acres of grounds. The study subjects responded to questions presented using a proprietary interactive computer survey located in one of the secure hospital wards. Data collection and analyses were conducted automatically without the investigators being present. Images of outdoor settings were ordered along two dimensions from built to natural and open to enclosed. Frequencies of first choice settings were analysed by preferred behaviour.	Both staff and patients selected natural- open settings for passive behaviours such as sitting and viewing scenery, and natural - enclosed settings for active behaviours such as walking and talking with others. Few statistically significant differences were found between staff and patients for preferred settings and/or behaviours. The study results demonstrated a consistent preference among participants for certain setting dimensions, particularly when combined with certain preferred behaviours. The results of the study are somewhat consistent with previous research findings that indicate a general preference for natural settings. Previous literature suggests that behaviour can affect setting preference (Purcell et al 1994) although the degree of naturalness within stimuli plays an important role.
Burrington, M., Can Private Rooms Be Justified in Today's Healthcare Market? The Center for Innovation in Health Facilities, 1999	The concept of the all private-room hospital is not a new one. The paper was initiated by a request from a Detroit area hospital to research and discuss the evidence that private-rooms promote a higher level of quality healthcare while increasing efficiency and providing financial benefits to a hospital facility. Issues concerning infection control demand for isolation rooms, environmental stress, privacy, flexibility of space, family-centered care, and patient preferences are examined. This report combines literature review and a study of current trends in hospital construction, with internal data and a patient preference survey conducted by William Beaumont Hospital, Royal Oak MI, in an attempt to illustrate that private rooms are an essential feature in today's competitive healthcare market.	Numerous benefits of private patient rooms have been realized for years. There is indication that less patient-to-patient contact decreases the incidence of costly nosocomial infections. All private-rooms provide flexibility for more efficient use of beds promoting overall higher occupancy rates by as much as 10%. Larger single-care rooms also offer flexibility through a broader range of capabilities and being better able to accommodate technologically advanced medical equipment needed to treat patients of rising acuity levels. In addition the potentially enormous cost of patient transfers due to double-occupancy problems is no longer a burden in an all-private room facility.
Curry, T., J., and B., W., Ratliff, The effects of nursing home size on resident isolation and life satisfaction, The Gerontologist, Part 1, Autumn, 1973, 295- 298	There are some theoretical reasons for predicting that nursing homes size may influence directly (and independently) the resident's isolation and life satisfaction. Henley & Davis 1967 argue that a person's life satisfaction is "likely to be influenced by certain aspects of his or her current environment." This study examines the effects of nursing home size on resident isolation and life satisfaction. Two hundred Aid to the Aged recipients residing in 26 proprietary nursing homes from the same county in Ohio were interviewed. The results revealed that although the residents in the larger homes were substantially more isolated than residents from the smaller homes, nursing home size did not influence life satisfaction to any great extent. Some residents who were highly satisfied were also severely isolated, similarly there were residents who were dissatisfied but not isolated.	The reason that small nursing homes facilitate the development of a greater number of friendships within the institution may not be just the result of their small physical size. The reason that residents of the smaller homes sampled in the study had fewer relatives and consequently less contact with these relatives can only be speculated on at this point. The results pertaining to life satisfaction were a bit surprising. Although substantial numbers of the residents were dissatisfied with their lives the majority were not. However the failure of the LSI (Havighurst-Neugarten's Life Satisfaction Index) to correlate highly isolation may be due in part to the fact that LSI measures general life satisfaction. While the isolated residents may be very lonesome and unhappy with their current isolation they may still be relatively satisfied with other areas of their life.
Davies, A., D., and P., A., Snaith, The social behaviour of geriatric patients at meal times: an observational and an intervention study; Age and Ageing, Vol. 9, 1980 93-99	Social withdrawal is widely reported amongst elderly patients in institutions (Gottesman & Brody 1975) Two studies of the social behaviour of geriatric patients are reported. In the 1st lunchtime observations were made of 2 comparable wards in a continuing-care hospital and all episodes of social interaction recorded. There were twice as many interactions on one ward as on the other and their type and variety differed. A 2nd study concentrated on the ward with fewer interactions and attempted to increase the social	There was a significant increase in social behaviour for all patients even those initially regarded as isolated. Staff-patient interaction also increased. There were 127 discrete instances of social interactions (Ward A: 41, Ward B: 86). Although Ward B had fewer staff & 2 fewer patients there were over twice the total number of social interactions and variety of interactions was greater (Ward A: 7 categories, Ward B: 11 categories). The 2 studies show

AEDET - Scoring Layer IMPACT

Achieving Excellence- Design Evaluation Toolkit

A CHARACTER AND INNOVATION ①②③④⑤⑥

		?	weight	score
1	There are clear ideas behind the design of the building		◎①②	①②③④⑤⑥
2	The building is interesting to look at and move around in		◎①②	①②③④⑤⑥
3	The building projects a caring and reassuring atmosphere		◎①②	①②③④⑤⑥
4	The building appropriately expresses the values of the NHS		◎①②	①②③④⑤⑥
5	The building is likely to influence future healthcare designs		◎①②	①②③④⑤⑥

B FORM AND MATERIALS ①②③④⑤⑥

		?	weight	score
1	The building has a human scale and feels welcoming		◎①②	①②③④⑤⑥
2	The building is well orientated on the site		◎①②	①②③④⑤⑥
3	Entrances are obvious and logically positioned in relation to likely points of arrival on site		◎①②	①②③④⑤⑥
4	The external materials and detailing appear to be of high quality		◎①②	①②③④⑤⑥
5	The external colours and textures seem appropriate and attractive		◎①②	①②③④⑤⑥

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C STAFF and PATIENT ENVIRONMENT ①②③④⑤⑥

	Bring scores forward from ASPECT tool	?	weight	score
1	*Privacy, company and dignity*		◎①②	①②③④⑤⑥
2	*Views*		◎①②	①②③④⑤⑥
3	*Nature and outdoors*		◎①②	①②③④⑤⑥
4	*Comfort and control*		◎①②	①②③④⑤⑥
5	*Legibility of place*		◎①②	①②③④⑤⑥
6	*Interior appearance*		◎①②	①②③④⑤⑥
7	*Facilities*		◎①②	①②③④⑤⑥
8	*Staff*		◎①②	①②③④⑤⑥

D URBAN /SOCIAL INTEGRATION ①②③④⑤⑥

		?	weight	score
1	The height, volume and skyline of the building relate well to the surrounding environment		◎①②	①②③④⑤⑥
2	The building contributes positively to its locality		◎①②	①②③④⑤⑥
3	The hard and soft landscape around the building contribute positively to the locality		◎①②	①②③④⑤⑥
4	The building is sensitive to neighbours and passers-by		◎①②	①②③④⑤⑥

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AEDET - Scoring Layer BUILD QUALITY

Achieving Excellence- Design Evaluation Toolkit

E PERFORMANCE ①②③④⑤⑥

		?	weight	score
1	The building is easy to operate		◎①②	①②③④⑤⑥
2	The building is easy to clean		◎①②	①②③④⑤⑥
3	The building has appropriately durable finishes		◎①②	①②③④⑤⑥
4	The building will weather and age well		◎①②	①②③④⑤⑥

F ENGINEERING ①②③④⑤⑥

		?	weight	score
1	The engineering systems are well designed, flexible and efficient in use		◎①②	①②③④⑤⑥
2	The engineering systems exploit any benefits from standardisation and prefabrication where relevant		◎①②	①②③④⑤⑥
3	The engineering systems are energy efficient		◎①②	①②③④⑤⑥
4	There are emergency backup systems that are designed to minimise disruption		◎①②	①②③④⑤⑥
5	During construction disruption to essential services is minimised		◎①②	①②③④⑤⑥

G CONSTRUCTION ①②③④⑤⑥

		?	weight	score
1	If phased planning and construction are necessary the various stages are well organised		◎①②	①②③④⑤⑥
2	Temporary construction work is minimised		◎①②	①②③④⑤⑥
3	The impact of the building process on continuing healthcare provision is minimised		◎①②	①②③④⑤⑥
4	The building can be readily maintained		◎①②	①②③④⑤⑥
5	The construction is robust		◎①②	①②③④⑤⑥
6	The construction allows easy access to engineering systems for maintenance, replacement and expansion		◎①②	①②③④⑤⑥
7	The construction exploits any benefits from standardisation and prefabrication where relevant		◎①②	①②③④⑤⑥

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AEDET - Scoring Layer FUNCTIONALITY
Achieving Excellence- Design Evaluation Toolkit

H USE ①②③④⑤⑥

		?	weight	score
1	The prime functional requirements of the brief are satisfied		◎①②	①②③④⑤⑥
2	The design facilitates the care model of the Trust		◎①②	①②③④⑤⑥
3	Overall the building is capable of handling the projected throughput		◎①②	①②③④⑤⑥
4	Work flows and logistics are arranged optimally		◎①②	①②③④⑤⑥
5	The building is sufficiently adaptable to respond to change and to enable expansion		◎①②	①②③④⑤⑥
6	Where possible spaces are standardised and flexible in use patterns		◎①②	①②③④⑤⑥
7	The layout facilitates both security and supervision		◎①②	①②③④⑤⑥

I ACCESS ①②③④⑤⑥

		?	weight	score
1	There is good access from available public transport including any on-site roads		◎①②	①②③④⑤⑥
2	There is adequate parking for visitors and staff cars with appropriate provision for disabled people.		◎①②	①②③④⑤⑥
3	The approach and access for ambulances is appropriately provided		◎①②	①②③④⑤⑥
4	Goods and waste disposal vehicle circulation is good and segregated from public and staff access where appropriate.		◎①②	①②③④⑤⑥
5	Pedestrian access routes are obvious, pleasant and suitable for wheelchair users and people with other disabilities / impaired sight.		◎①②	①②③④⑤⑥
6	Outdoor spaces are provided with appropriate and safe lighting indicating paths, ramps and steps		◎①②	①②③④⑤⑥
7	The fire planning strategy allows for ready access and egress		◎①②	①②③④⑤⑥

J SPACE ①②③④⑤⑥

		?	weight	score
1	The design achieves appropriate space standards		◎①②	①②③④⑤⑥
2	The ratio of usable space to the total area is good		◎①②	①②③④⑤⑥
3	The circulation distances travelled by staff, patients and visitors are minimised by the layout		◎①②	①②③④⑤⑥
4	Any necessary isolation and segregation of spaces is achieved		◎①②	①②③④⑤⑥
5	The design makes appropriate provision for gender segregation		◎①②	①②③④⑤⑥
6	There is adequate storage space		◎①②	①②③④⑤⑥

NOTES:-

AEDET - Score Summary

Achieving Excellence- Design Evaluation Toolkit

Bring forward scores from each Heading in the Scoring Layer to the chart below.

FLAGS

List any elements, spaces or parts of the design that are significantly worse (-) or better (+) than the marked standard.

This can be used to 'Flag' any exceptions to the overall scores that you specifically wish to have noted.

	?	①	②	③	④	⑤	⑥	- Flagged as worse	+ Flagged as better
A CHARACTER AND INNOVATION		+	+	+	+	+	+		
B FORM AND MATERIALS		+	+	+	+	+	+		
C STAFF and PATIENT ENVIRONMENT		+	+	+	+	+	+		
D URBAN/SOCIAL INTEGRATION		+	+	+	+	+	+		
E PERFORMANCE		+	+	+	+	+	+		
F ENGINEERING		+	+	+	+	+	+		
G CONSTRUCTION		+	+	+	+	+	+		
H USE		+	+	+	+	+	+		
I ACCESS		+	+	+	+	+	+		
J SPACE		+	+	+	+	+	+		