

Healthcare Facility Design for the Future: Emerging Issues in Europe, UK & USA (presentation)

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HEALTHCARE FACILITY DESIGN FOR THE FUTURE:

**Emerging Issues in Europe,
UK & USA**

**Jane Carthey, Director, CHAA
11 November 2005**

CHAA CONFERENCE 2005



Outline

- WCDH, Frankfurt, 2005: Overview
- Issues emerging in health care facility design – international perspective:
 - Integration into the urban fabric - exemplar hospitals visited
 - Humanising healthcare environments – Case Study of University Hospital, Groningen, plus Bethaniel Hospital, Frankfurt
 - Designing for Flexibility and Adaptability: Case Study of Martini Hospital Groningen



Overview: World Congress 2005 & Study Tour

- 4th World Congress sponsored by the International Academy for Design and Health, Karolinska Institute, Sweden, held in Frankfurt, Germany
- Multi-disciplinary, 200+ attendees
- Overall aim: 'to stimulate and develop high quality research on design and health, culture and psychosocial work environments as well as to strengthen and promote the exchange of research findings among scientists, health care professionals, administrators, professional designers and managers of work environments throughout the world'.



Overview of the WCDH 2005 & Study Tour

- Congress themes included:
 - Improving the hospital environment for patients
 - Improving the hospital as a staff workplace
 - Building Healthcare facilities to last - flexibility and adaptability
 - Examining current trends in procurement methods such as PPP, PFI including outcomes.





Overview of WCDH 2005 & Study Tour

- Many of the same issues as Australia, some differences
- Innovative options for addressing **flexibility/future proofing** are being explored
- Europe, large volume of work, **broad base of experience and data** which should be of great interest and value to us
- Some of our accepted space standards and practices are not universally accepted in Europe, the US or UK where **differing tradeoffs** apply depending on market systems and cultural expectations
- While cost effective future proofing is pursued there remains a commitment to producing quality facilities which contribute in a positive way to patient's healing and well being – '**humanising the healthcare environment**'.



Emerging Issues - NHS PPP Experience

- Suspicion that the PPP process is often mismatched to the reality of healthcare facility lifecycles
- PPP contracts expect a life of 25 to 30 years
- Rate of change of healthcare delivery is among the fastest of all sectors with major change often seen within 5-10 year timeframes
- Major penalties being incurred in payments to operators to reconfigure facilities to suit changed needs
- New thinking that life cycle costing (NPV calculations) should be different for different components (structure, envelope, fit out, mechanicals, etc)





Emerging Issues – Europe & UK



- New mantra is:
“long life - loose fit”
- WHO European Observatory
“Hospitals in a Changing
Europe”, McKee and Heely
essay notes that:
“An optimal design is one that
inhibits change of function least,
rather than one that fits a specific
function best.”



Emerging Issues: Single bed rooms vs multi-bed rooms

- Vigorous debate but often based on anecdote not evidence
- Common practice in Europe appears to be about 50% singles (EuHPN NHS study recommended 50 – 100%)
- Some prominent projects (Rotterdam's major teaching hospital - 1000 beds) deciding to adopt 100% singles
- US increasingly moving to 100% singles although this seems to be cultural/market/revenue driven



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Humanising the Hospital – Case Study: Groningen University Hospital, NL



Humanising the Hospital – Case Study: Groningen University Hospital, NL



- Major urban teaching hospital - inner city location
- Pedestrian environment contiguous with city centre
- Original (unexceptional) buildings dating from 1980's
- Succession of infill projects over many years
- Often completed by in-house engineering staff
- Innovative approach to site use - joint development deals for projects including residential apartment blocks for staff, medi-hotel, - not only financial benefit but “liveliness” and connection to the community

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Humanising the Hospital: Case Study

Groningen University Hospital, NL



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Humanising the Hospital: Groningen UMC - Public Space

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**Humanising the Hospital:
Groningen UMC - Public Space**

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Humanising the Hospital: Groningen UMC - Patient Space

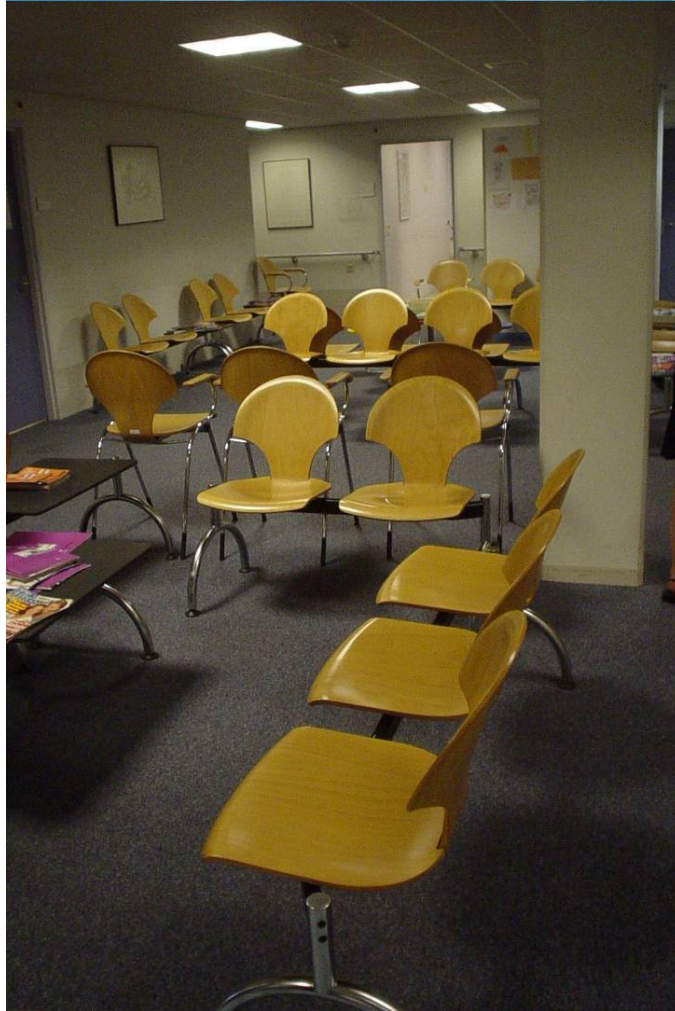


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Humanising the Hospital: Groningen UMC - Patient Space - waiting





Sneek Hospital OPD, NL



**Humanising the Hospital:
Groningen UMC - Patient
Space – Not Always!!**

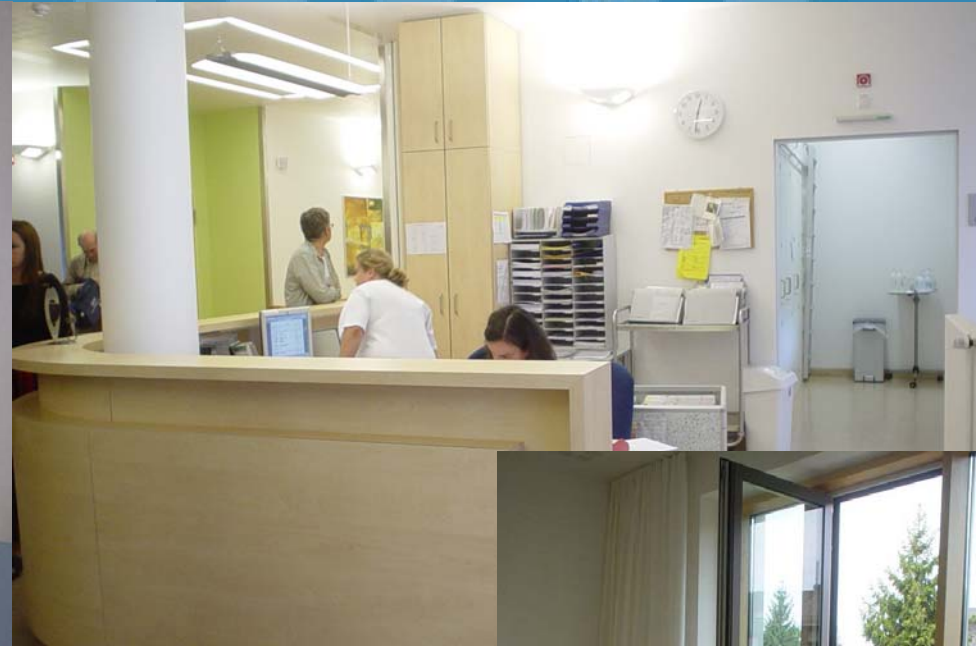


**Humanising the Hospital:
Bethaniel Hospital Frankfurt - Patient Space**

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Patient Lounge



Staff Work Area

Staff Room

Humanising the Hospital – Bethaniel Hospital Frankfurt Patients and Staff





Humanising the Hospital: Bethaniel Hospital Frankfurt -Bariatric Care



Designing for Flexibility and Adaptability – Case Study: Martini Hospital, Groningen, NL

“A building in which a hospital fits”



Two locations; one Teaching Hospital
Consolidation to one site - commissioning date in 2007



Designing for Flexibility and Adaptability – Case Study: Martini Hospital, Groningen, NL

- 570 beds, outpatients, 20 bed ICU, 17 operating rooms, Burns Centre,
- 10,000 sq. m Martini Care Business Centre for care providers and care related providers to develop commercial activities, particular focus on creating links between primary and secondary care
- Total Floor Area: 58,000 sqm new, 35,000 sqm refurbishment,
- Cost: 153 Million Euro
- Aim: ‘an innovative and future focussed hospital with flexible layout that can respond to changing demands’ and
- ‘... a building in which one feels good: a so-called healing environment, in which daylight colour and design are in harmony....’



Designing for Flexibility and Adaptability – Case Study: Martini Hospital, Groningen, NL

Jack Thiadens - CEO Martini Hospital :

- Building a hospital is giving shape to your care vision. The developments in care are high speed. The new hospital must be flexible, changeable, and future focused to respond accordingly.
- A well balanced combination of colour, light and architecture adds an extra dimension to the whole and will provide the building with a very friendly atmosphere. A healing environment is what we want to offer our patients

Arnold Burger Architect:

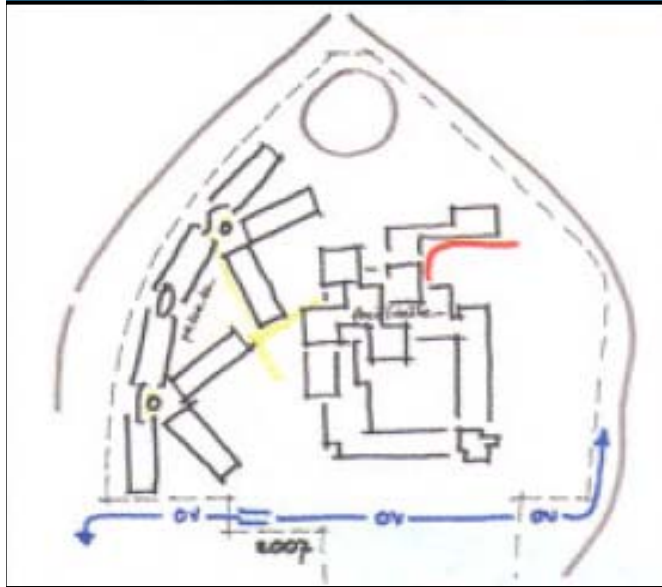
- The only certainty we saw for the future was uncertainty. We have based the overall design of the building on this. It has been implemented from the smallest detail from architecture to technique.

Martini Hospital Groningen – Approved Draft Plan Nov 2000

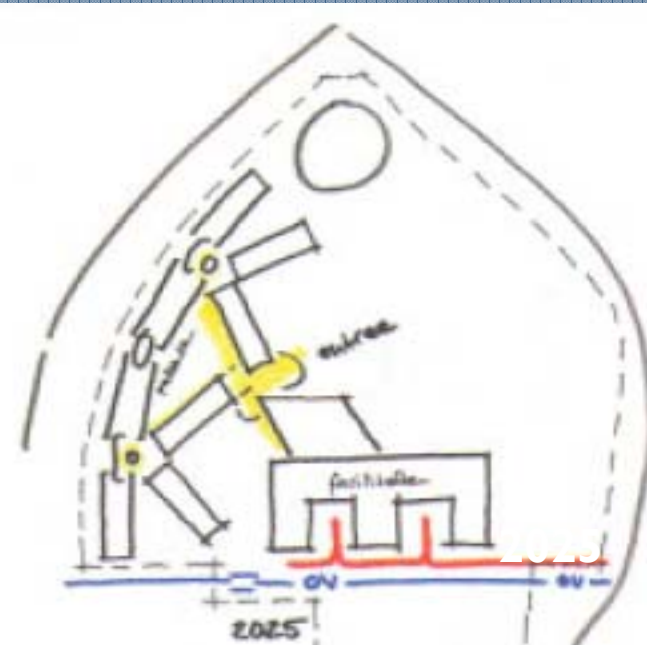
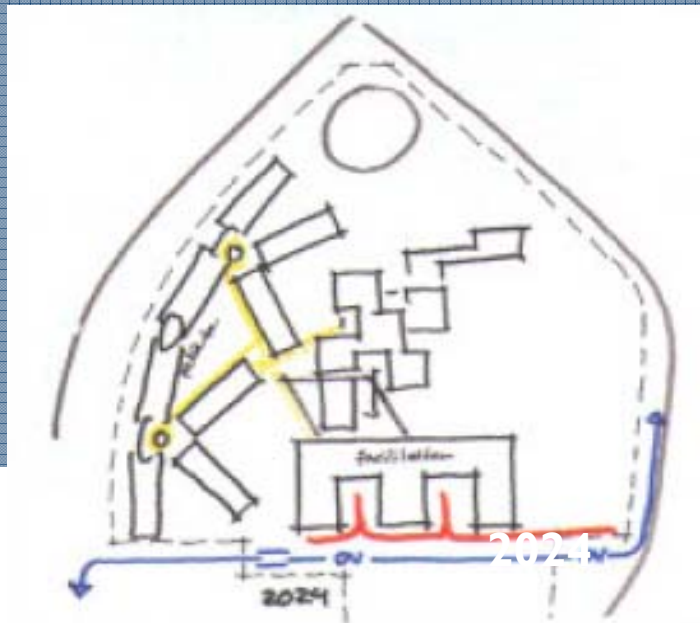


- Existing building as heart of the new building
- Enlarging in extensions
- Ward-block in the middle
- After 20 years: heart of the building is 40 years old
- Hospital of the 20th century instead of the 21st century?

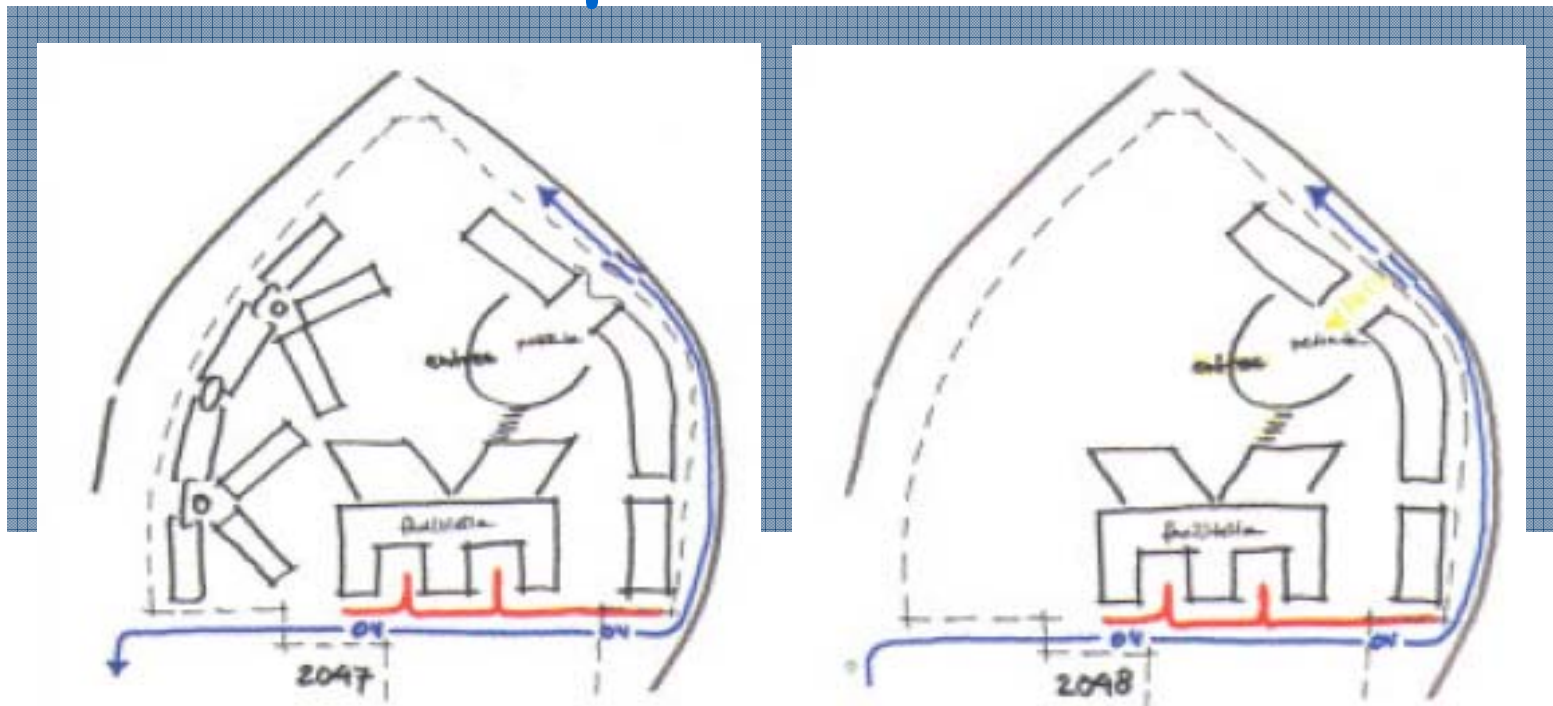
Martini Hospital, 2007 Plan



Martini Hospital - 2024/25 Plan



Martini Hospital - 2047/48 Plan



2047

2048



Industrial - Flexible - Demountable

Industrial

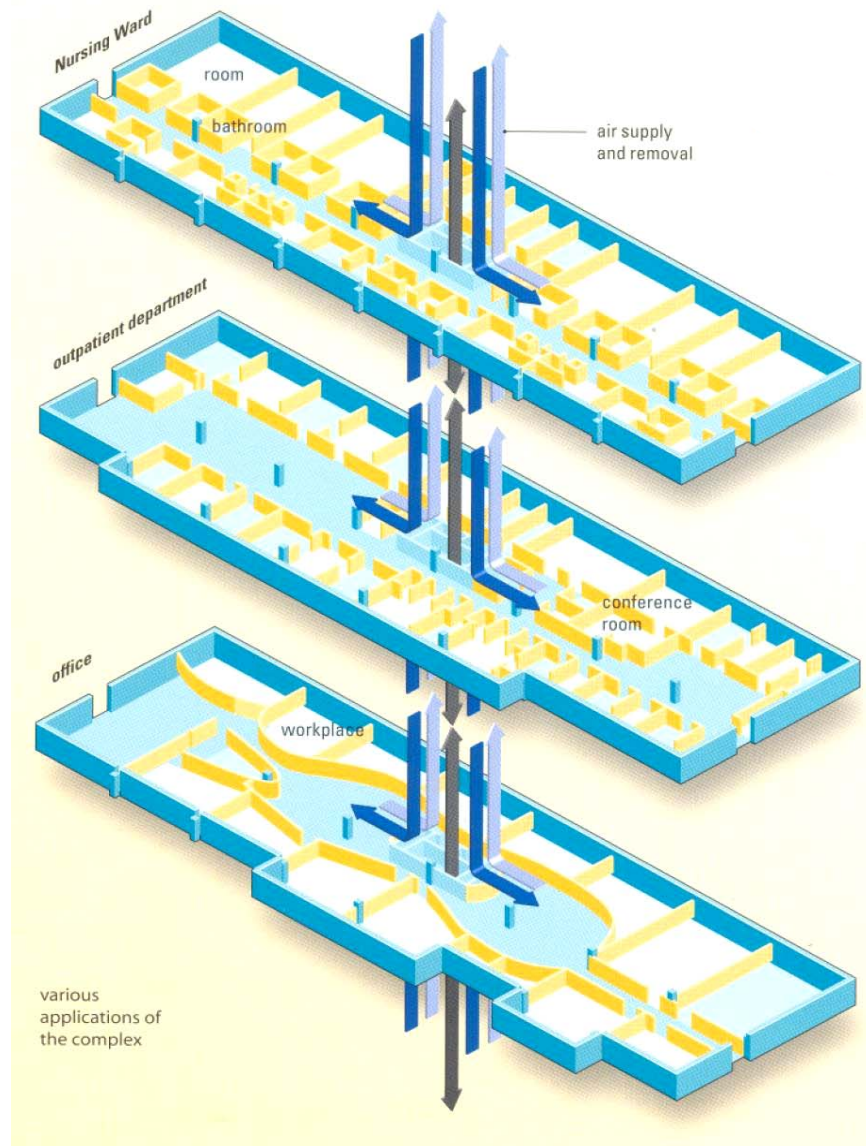
- Based on standardisation. Building skeleton (uniform building blocks), façade panels, system walls completely pre fabricated
- Rooms in the outpatient departments have standard dimensions - suitable for all specialities
- Riser shafts are standardised

Flexible (at all levels of design)

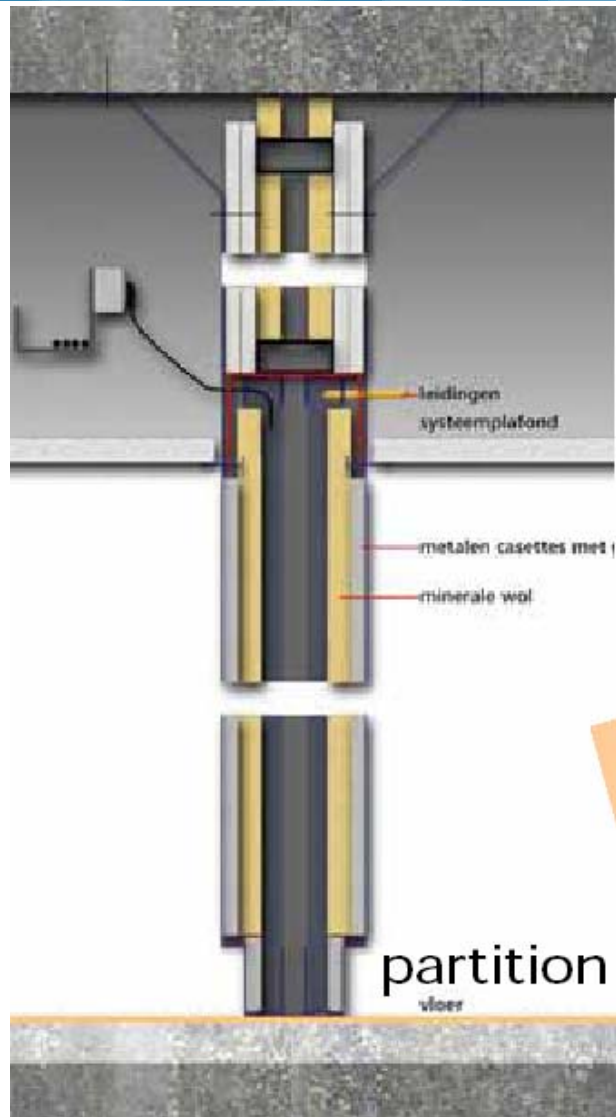
- Extensions of 2.4 by 7.2 metres may be added as “drawers”
- Building floor area can be increased by up to 10%
- Arranged so that in the future it can accommodate non - hospital functions

Demountable

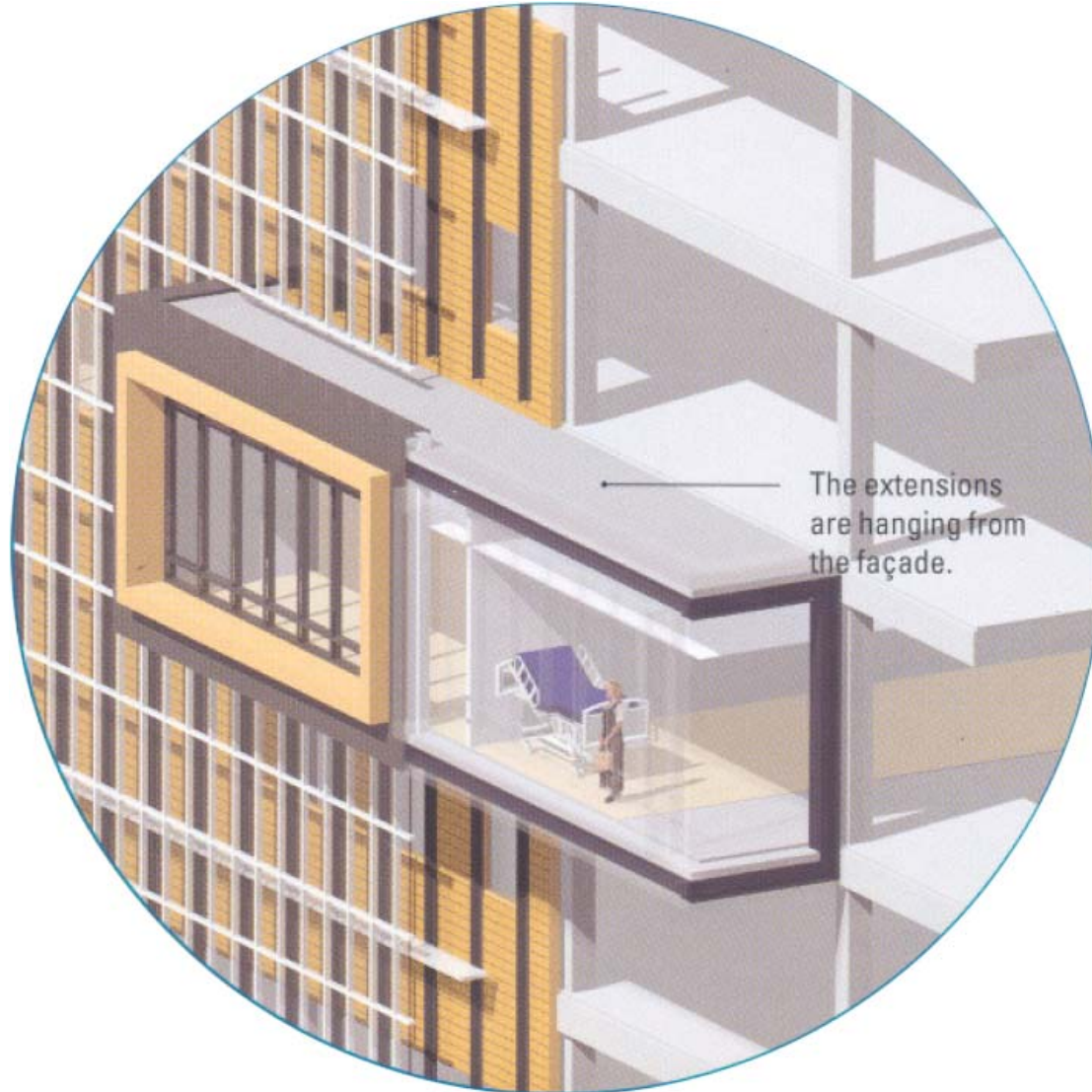
- Change of function readily achieved by demountable walls – ward can be converted to outpatients, etc



Industrial

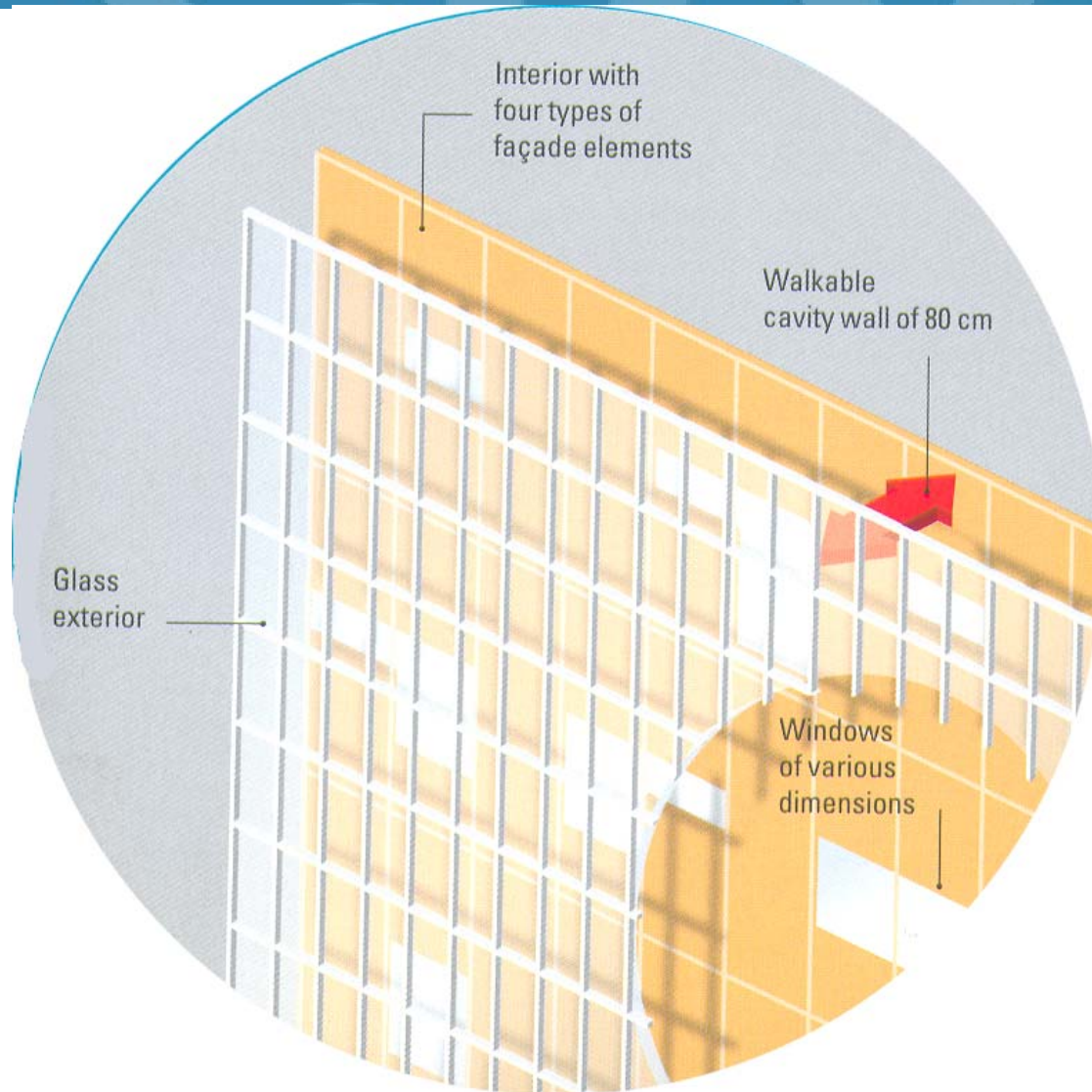


Industrial

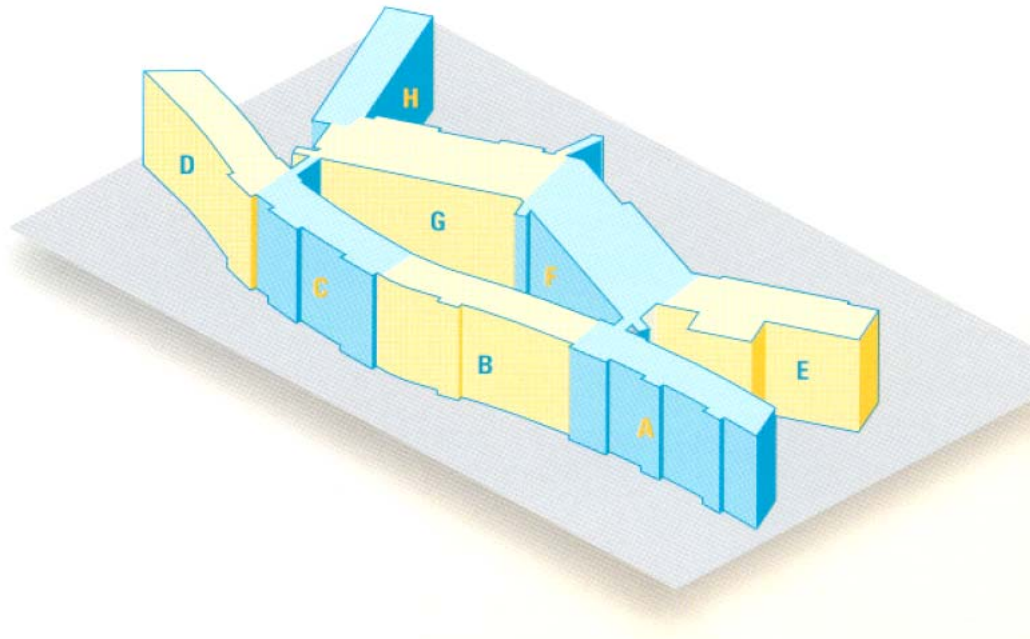


The extensions
are hanging from
the façade.

Flexible

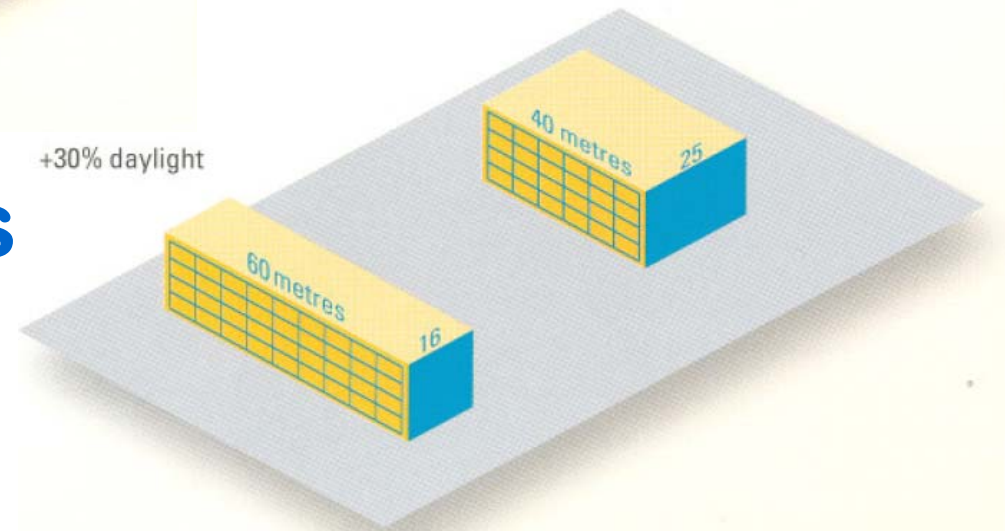


**Demountable/
Flexible**

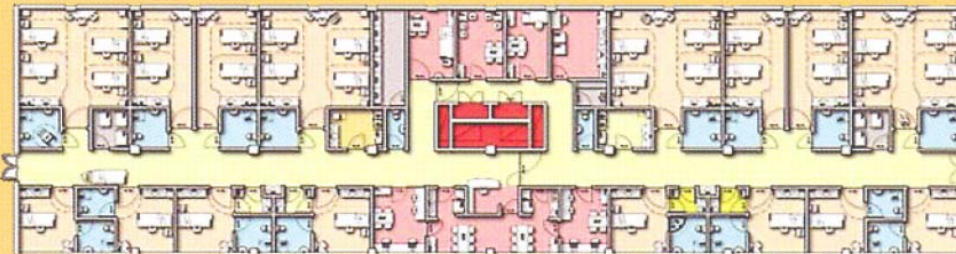


Flexible - Elements

+30% daylight



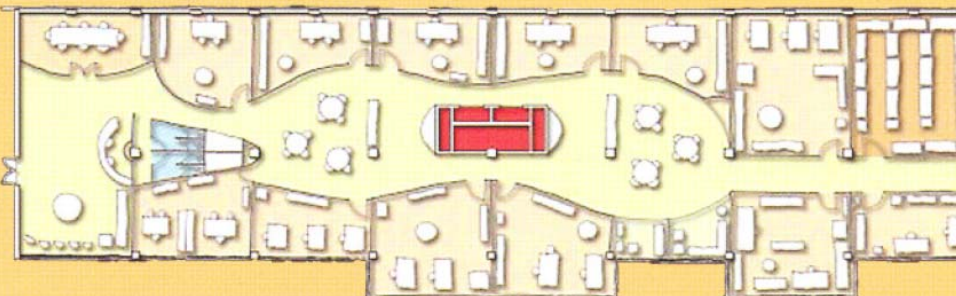
▼ Nursing department



▼ Outpatients department



▼ Office space



Flexible – Planning



entrance approach



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