

Infection Prevention and Control by Design



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Objectives

- Brief introduction to the effect of the built design and using evidence to shape our buildings
- Delivery models for new builds
- CSA Z8000 highlights
- Furniture and Finishes

“We shape our buildings; thereafter
they shape us.”

Winston Churchill



Evidence Based Healthcare Design

- The intentional use of qualitative and quantitative credible research to make design decisions when building new or renovating healthcare facilities
- The literature shows that design recommendations affect many important outcomes
- Increased knowledge enables better design solutions and risk mitigation associated with problem designs



Historical Perspective

- 1993 The Center for Health Design was founded in USA
- 1997 Johns Hopkins Research Team identified 84 EBD studies
- Mid 1990's patient safety movement prominent in healthcare
- **2001 Health Canada – “Construction-related Nosocomial Infections in Patients in Health Care Facilities Decreasing the Risk of *Aspergillus*, *Legionella* and Other Infections”**
- 2004 Ulrich and Zimring identified 600 EBD studies

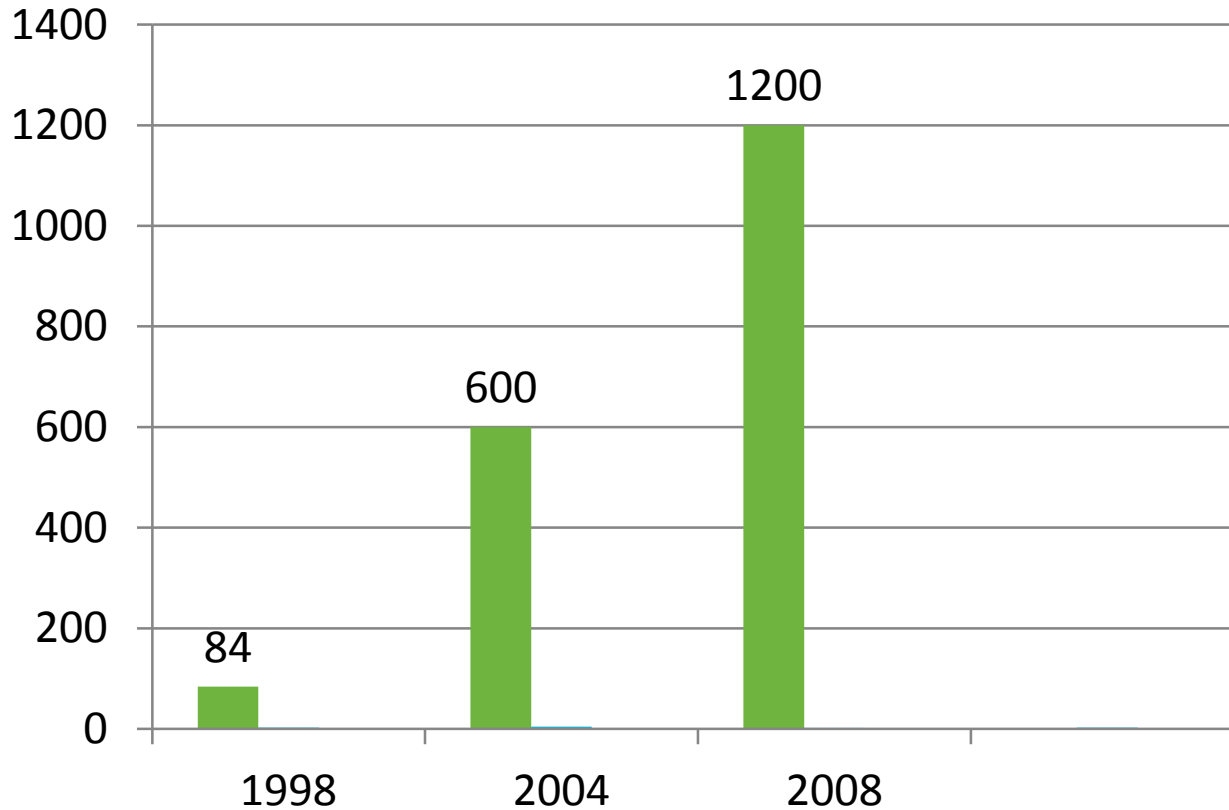


The Pebble Project

- One of the worlds largest field study projects
- Collect data using a matrix
- Allow trends to be identified
- Defined poorly performing design solutions
- Participants share knowledge through peer reviewed journals

<http://www.healthdesign.org/pebble>

Studies Published on Evidence Based Design



Guidelines for Design and Construction of Health Care Facilities: Facilities Guideline Institute (American)

- minimum program, space, functional program, patient handling, infection prevention, architectural detail, and surface and furnishing needs
- clinical and support areas of hospitals,
- ambulatory care facilities, rehabilitation facilities
- nursing and other residential care facilities
- Next revision cycle for 2014 document will be fall 2012



Generic Output Specification 2008 (GOS)

- Design criteria and parameters for planning and construction of hospitals in Ontario
- Recognized that well designed work spaces will reduce HAI
- IPAC considerations should aim to reduce infection in both patient and staff
- Multidisciplinary team of experts



GOS - Five IPAC Foci

Hand Hygiene

Airborne
Isolation
Rooms

Waste
Management

Space/storage
Requirements

HVAC
Considerations

Clean and
Soiled

CSA Z8000 Health Care Facilities

- Released in September 2011
- Input was multidisciplinary and Canada wide
- IPAC, architects, CSA, HVAC and industry specialists healthcare providers
- specific design considerations outlined

<http://shop.csa.ca/en/canada/health-care-facility-engineering/z8000-11/invnt/27033042011/>



Idea for CSA Z8000

- FGI Guidelines
- June 2003 concept discussed
- 2005 Business Case
- 2006 Technical Subcommittee formed
- March 2007 First Subcommittee Meeting
- April to June 2010 Public Review
- June 2011 Committee Vote
- Published September 2011
- On going review and feedback form stakeholders (this includes all of you !)

What is Z8000 for and What is it not?

Document for :

1. new construction
 2. significant renovation
- Objective and performance based
 - Functional Approach
 - Reference existing CSA standards,
- Not a specification
 - Not a replacement for design innovation
 - Not meant to replace existing CSA standards
 - Not meant to re-write existing CSA standards

OASIS Principle – Capital Planning Branch

Health Care Facilities are built based on:

- **Operations**
- **Accessibility**
- **Safety and Security**
- **Infection Prevention and Control**
- **Sustainability**

What happens when OASIS principles conflict ?

- Conscious decisions are made in cases of conflict
- See clause 4.3

Build It And They Will Come



Delivery Models



Image Source: MS office
Clipart

- Traditional (Hard Bid or Design-Bid-Build)
- •Construction Management (CM)
- •Alternate Financing Procurement (DBFM / DBF)
- •Public Private Partnerships (P3/PPP)
- Design-build
- Multiple Prime Contractors
- Performance Contracting
- Turn Key
- Integrated Project Delivery (IPD)

It's not all about IPAC

Equipment Storage Issues Section 7.7.16:

- As per the functional plan
- Not less than 2% of the service area provided in plan
- Provided in every service area
- Affects IPAC, Fire and Safety, Security etc.

Single Bedded Rooms: One Bum One Toilet

Section 4.5.3

- All acute care rooms must be single bedded except:
 - If functional plan demonstrates a need for other
 - Must have documentation of the need for other
- In a 2-bed or multi-bed room there must be 1 washroom per patient



Image Source : MS office Clipart



Hand Hygiene: Section 11.1.19

Hand hygiene sink :

- A sink that is only used by health care workers for hand hygiene
- Size Prevent splashing during use
- Dimensions: 350 x 250 mm x 225 mm deep
- Spout offset from drain

Waterless hand hygiene station:

- A location that is equipped with a waterless hand sanitizer dispenser

More about Sinks

- Mounted at least 1 m from work surfaces
- Faucets to be hands free:

Electric eye operation

Foot pedal operator

Faucet blades

Include single use paper towel dispensers

No cloth drying towels allowed

No hot-air dryer allowed

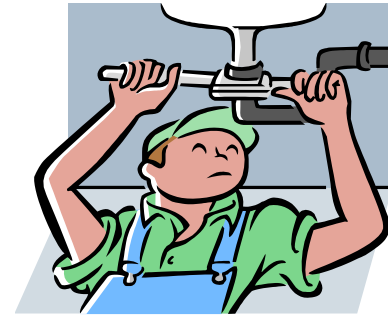


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“However beautiful the strategy, you should occasionally look at the results”

Winston Churchill

Waterless Hand Hygiene Station

There is a mandatory requirement to install at point of care

- think of resident bathroom in Long term care homes

It is advisory to install outside of patient bedroom

- at entrances
- Installed at the bedside

Adjacency Relationships to Critical Care

Required

- Maternal / Child
- Pediatric and adolescent IP
- ED
- Procedures e.g. DI /X-ray

Recommended

- Med/ Surgical IP
- Laboratory
- Respiratory

Finishes and Furnishings

- Not upholstered
- Able to be cleaned and disinfected with healthcare grade disinfectants
- Seamless
- Non-porous

Waste Management

- Consider process and work flow
- No wands for bedpans
- Dirty Utility
 - Washer disinfectors
 - Disposables
 - Hygienic bags

- Thank you- Questions?

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References

- PIDAC Best Practice Documents

http://www.health.gov.on.ca/english/providers/program/infectious/pidac/pidac_mn.html

- Public Health Agency of Canada

<http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/aspergillus-spp-eng.php>

- CSA Standard Z317.13.07

<http://shop.csa.ca/en/canada/health-care-facility-engineering/canrsa-z31713-07/invt/27019572007/>

References

- CSA Z8000

<http://shop.csa.ca/en/canada/landing-pages/z8000-canadian-health-care-facilities/page/z8000/>

- CHICA audit tools

<http://www.chica.org/index.php>

- Pebble Project

<http://www.healthdesign.org/pebble>

Multi use Hand washing sink



When specs aren't followed

