Research in Practice

Presented by the AIA Residential Knowledge Community
www.aia.org/residential

Future Programs

September 26 - Greening Housing Research

October 10 - Researching Resilience

October 24 - Affordable Housing Research

November 7 - Healthy Homes Research

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Research in Practice

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Course Description

A panel of experts in architectural and environmental research will explore various approaches to research and strategies for the application of scientific and non-scientific research to architectural practice. The latest trends in evidence-based design will be discussed as will the current status of housing research at the Association of Collegiate Schools of Architecture. A case study of assisted-living facilities commissioned by the architect and conducted by a leading researcher will be described and analyzed. There will be an opportunity for questions and discussion.

Learning Objectives

1. Participants will learn to identify various types and methods of research.
2. Participants will learn about current trends in evidence-based design.
3. Participants will gain an understanding of various strategies for applying research to their own practices.
4. Participants will gain an understanding of ways in which housing research is being conducted in the field and in the academy.

Speaker: Michael Monti, PhD

Executive Director

Association of Collegiate Schools of Architecture

Definition for Research

Systematic inquiry directed toward the creation of knowledge.

Groat & Wang, Architectural Research Methods, 7 (citing James Snyder, Architectural Research, 1984)

Research Methods

Types of Research

Quantitative

- Building performance, energy usage, heat gain, daylighting, environmental systems

Qualitative

- Formal approaches: ethnography, grounded theory, interpretivism
- Methods: interviews, focus groups; behavior observation, field notes; document analysis, coding

Research Methods

Research is different from analytic and synthetic thinking.

Research is more than simply models, simulations, prototypes, etc.

Research Methods

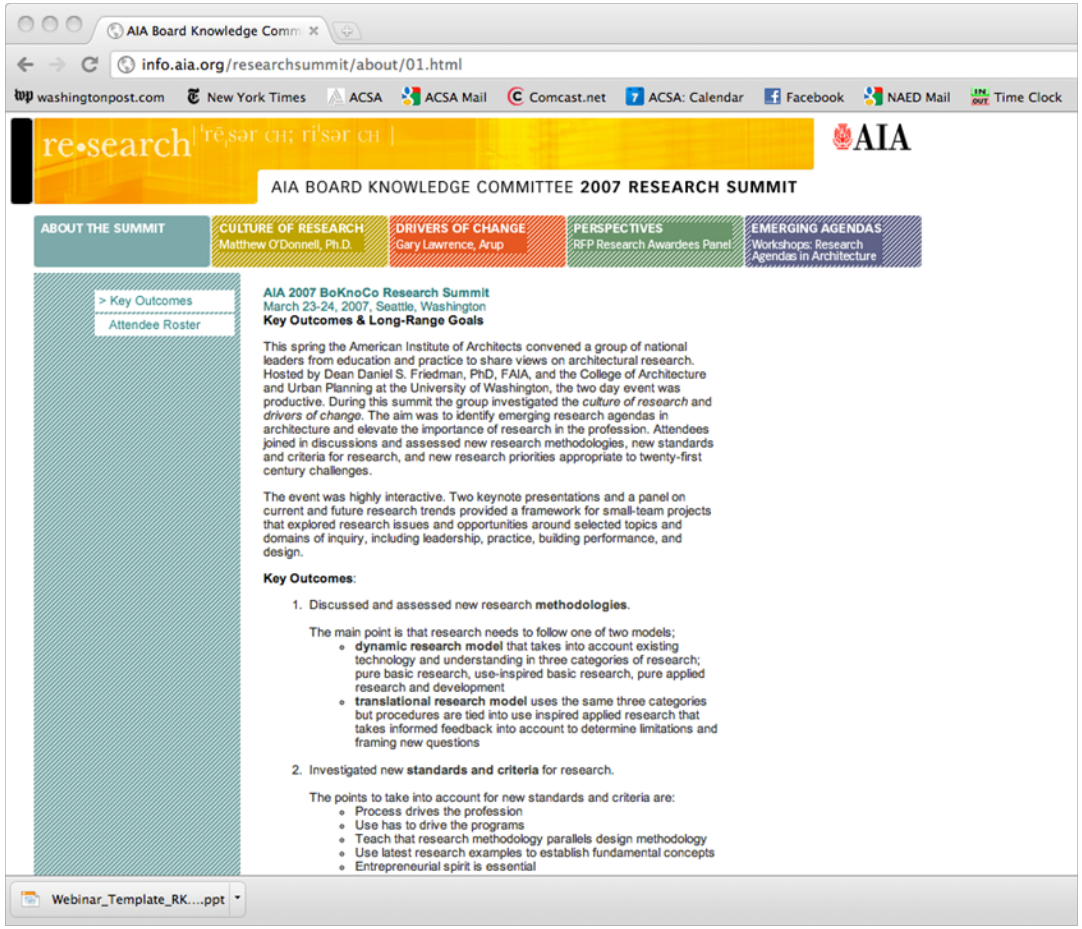
Systematic inquiry directed toward the creation of knowledge.

Systematic

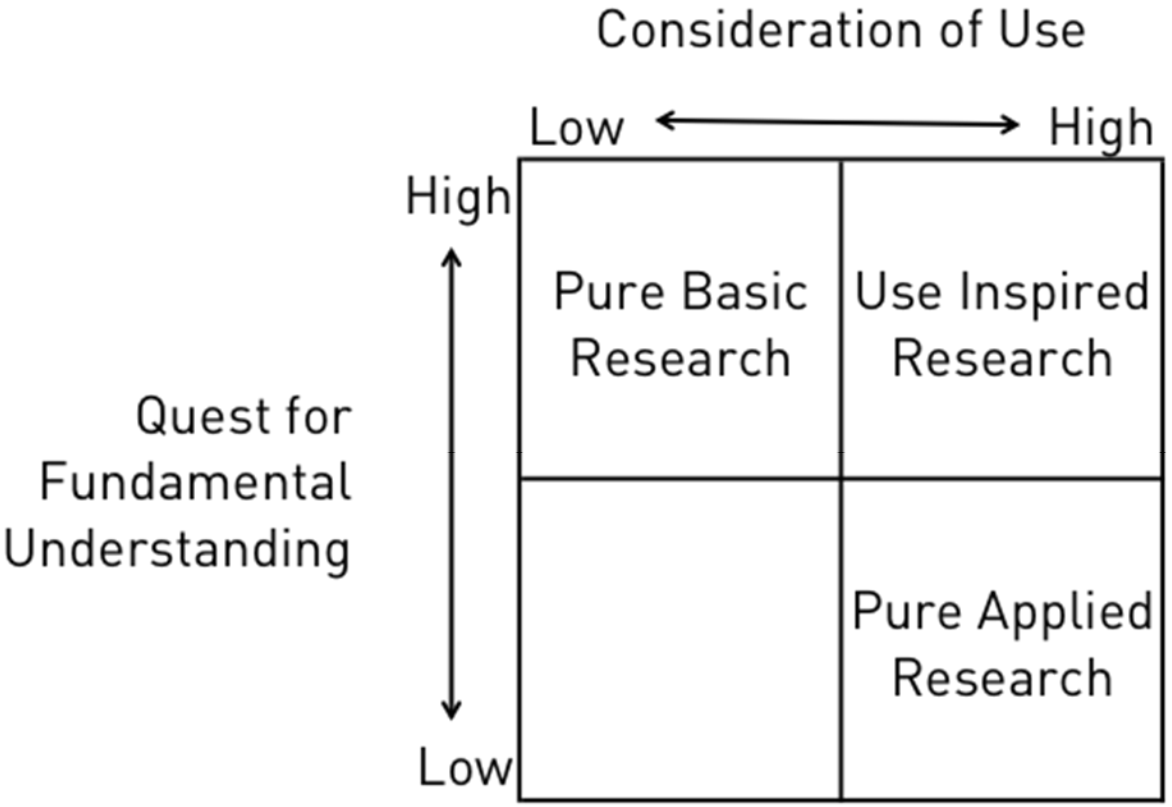
Knowledge

Research Resource

AIA Board Knowledge Committee 2007 Research Summit



Applied Research



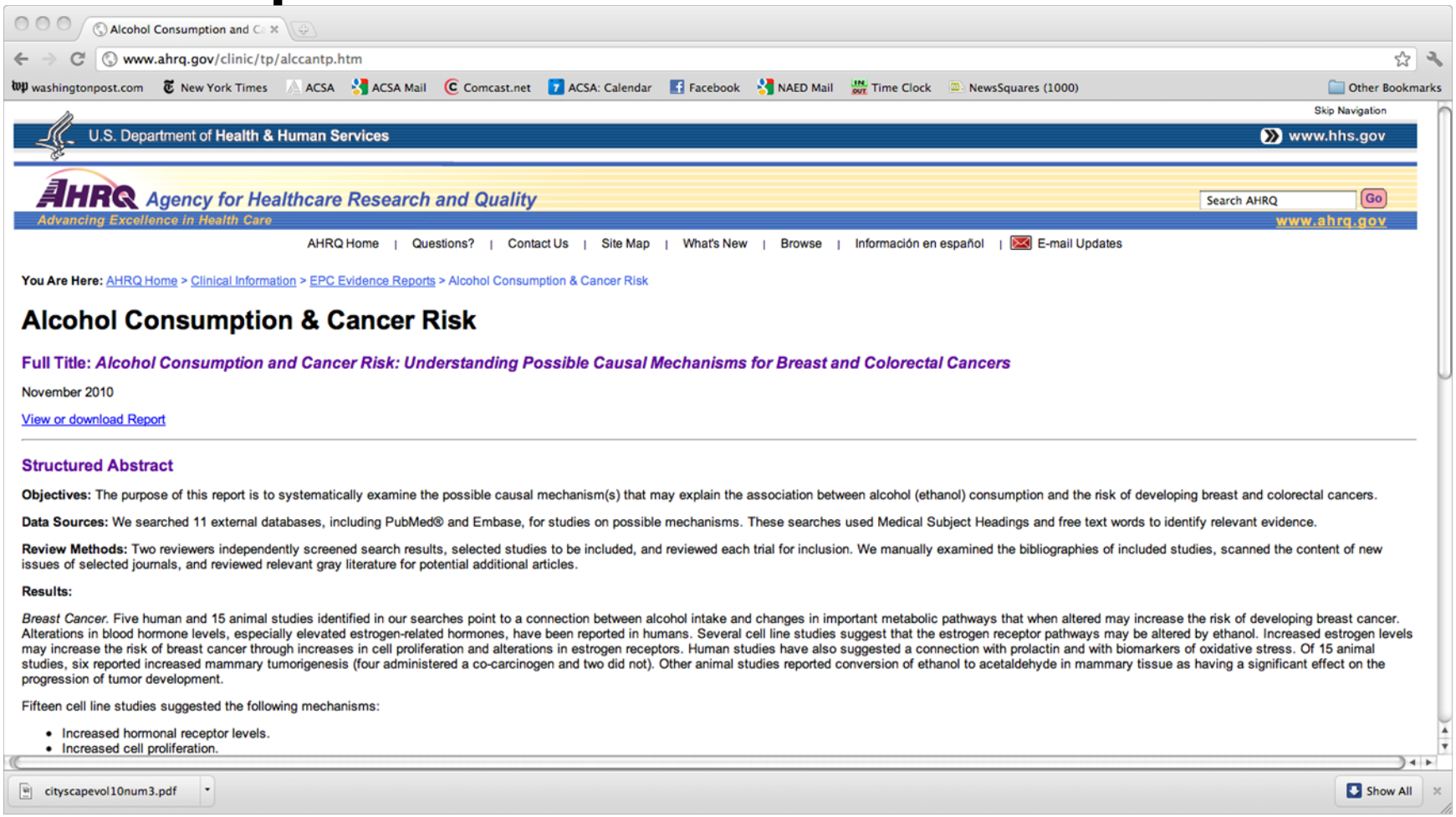
Adapted from Matt O'Donnell, *The Culture of Research*, based on D. Stokes, *Pasteur's Quadrant*.

Evidence-Based Practice

Sherry Ahrentzen
“Evidence-based health practice means integrating the best available clinical evidence from systematic research with individual clinical expertise.”

“More Than Just Looking Good: Toward an Evidence-Based Design Practice in Affordable Housing,” 15

Evidence-Based Practice Examples



Alcohol Consumption and C

www.ahrq.gov/clinic/tp/alccantp.htm

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You Are Here: AHRQ Home > Clinical Information > EPC Evidence Reports > Alcohol Consumption & Cancer Risk

Alcohol Consumption & Cancer Risk

Full Title: *Alcohol Consumption and Cancer Risk: Understanding Possible Causal Mechanisms for Breast and Colorectal Cancers*

November 2010

View or download Report

Structured Abstract

Objectives: The purpose of this report is to systematically examine the possible causal mechanism(s) that may explain the association between alcohol (ethanol) consumption and the risk of developing breast and colorectal cancers.

Data Sources: We searched 11 external databases, including PubMed® and Embase, for studies on possible mechanisms. These searches used Medical Subject Headings and free text words to identify relevant evidence.

Review Methods: Two reviewers independently screened search results, selected studies to be included, and reviewed each trial for inclusion. We manually examined the bibliographies of included studies, scanned the content of new issues of selected journals, and reviewed relevant gray literature for potential additional articles.

Results:

Breast Cancer. Five human and 15 animal studies identified in our searches point to a connection between alcohol intake and changes in important metabolic pathways that when altered may increase the risk of developing breast cancer. Alterations in blood hormone levels, especially elevated estrogen-related hormones, have been reported in humans. Several cell line studies suggest that the estrogen receptor pathways may be altered by ethanol. Increased estrogen levels may increase the risk of breast cancer through increases in cell proliferation and alterations in estrogen receptors. Human studies have also suggested a connection with prolactin and with biomarkers of oxidative stress. Of 15 animal studies, six reported increased mammary tumorigenesis (four administered a co-carcinogen and two did not). Other animal studies reported conversion of ethanol to acetaldehyde in mammary tissue as having a significant effect on the progression of tumor development.

Fifteen cell line studies suggested the following mechanisms:

- Increased hormonal receptor levels.
- Increased cell proliferation.

cityscapevol10num3.pdf

Show All

Evidence-Based Practice

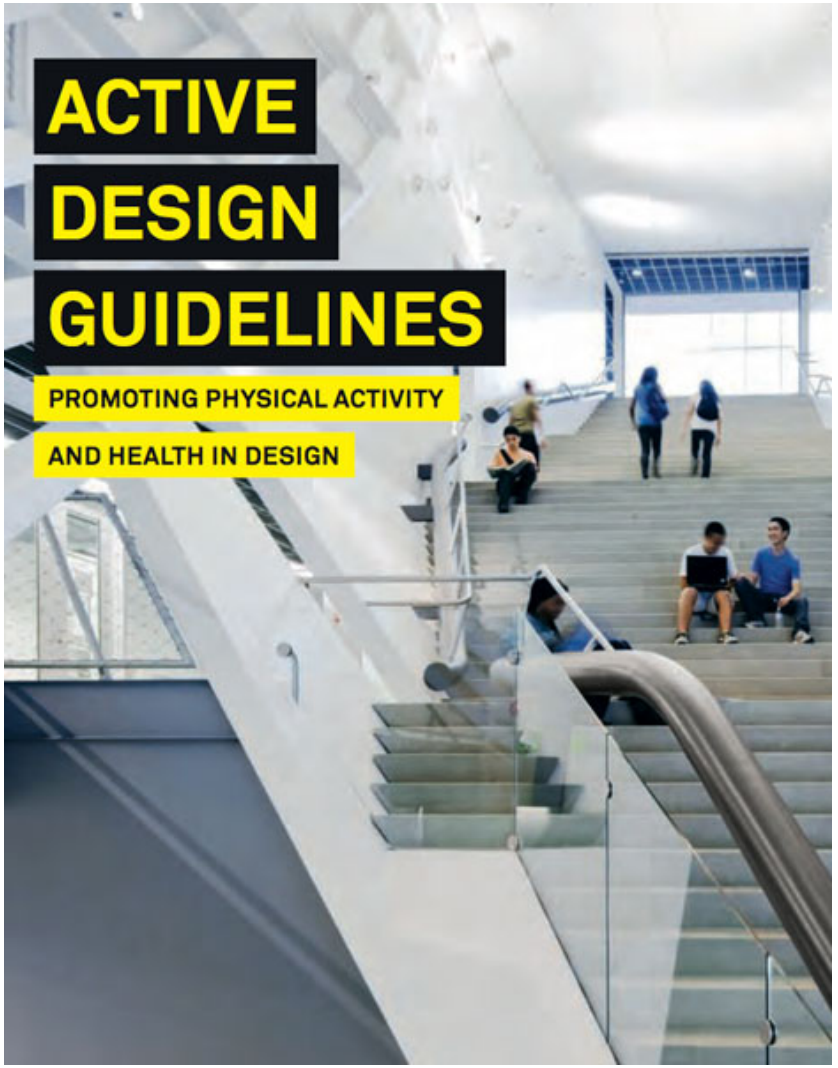
Sherry Ahrentzen
“Evidence-based health practice means integrating the best available clinical evidence from systematic research with individual clinical expertise.”

“Designers working with clients to make decisions based on the best information available from research.”

“More Than Just Looking Good: Toward an Evidence-Based Design Practice in Affordable Housing,” 15, 16

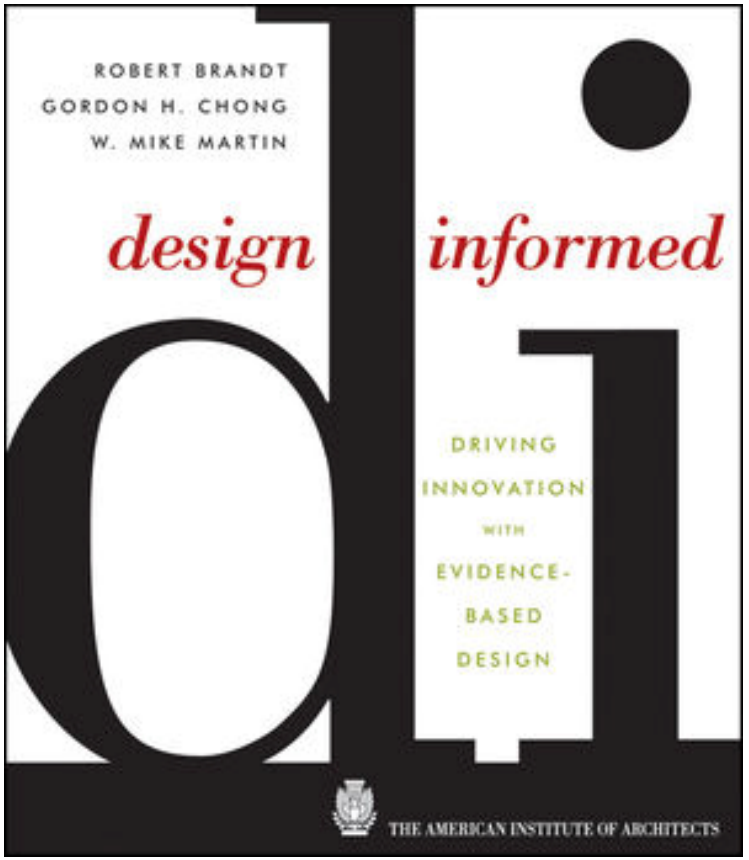
EBP Examples: Architecture & Design

Design & Policy Guidelines



EBP Examples: Architecture & Design

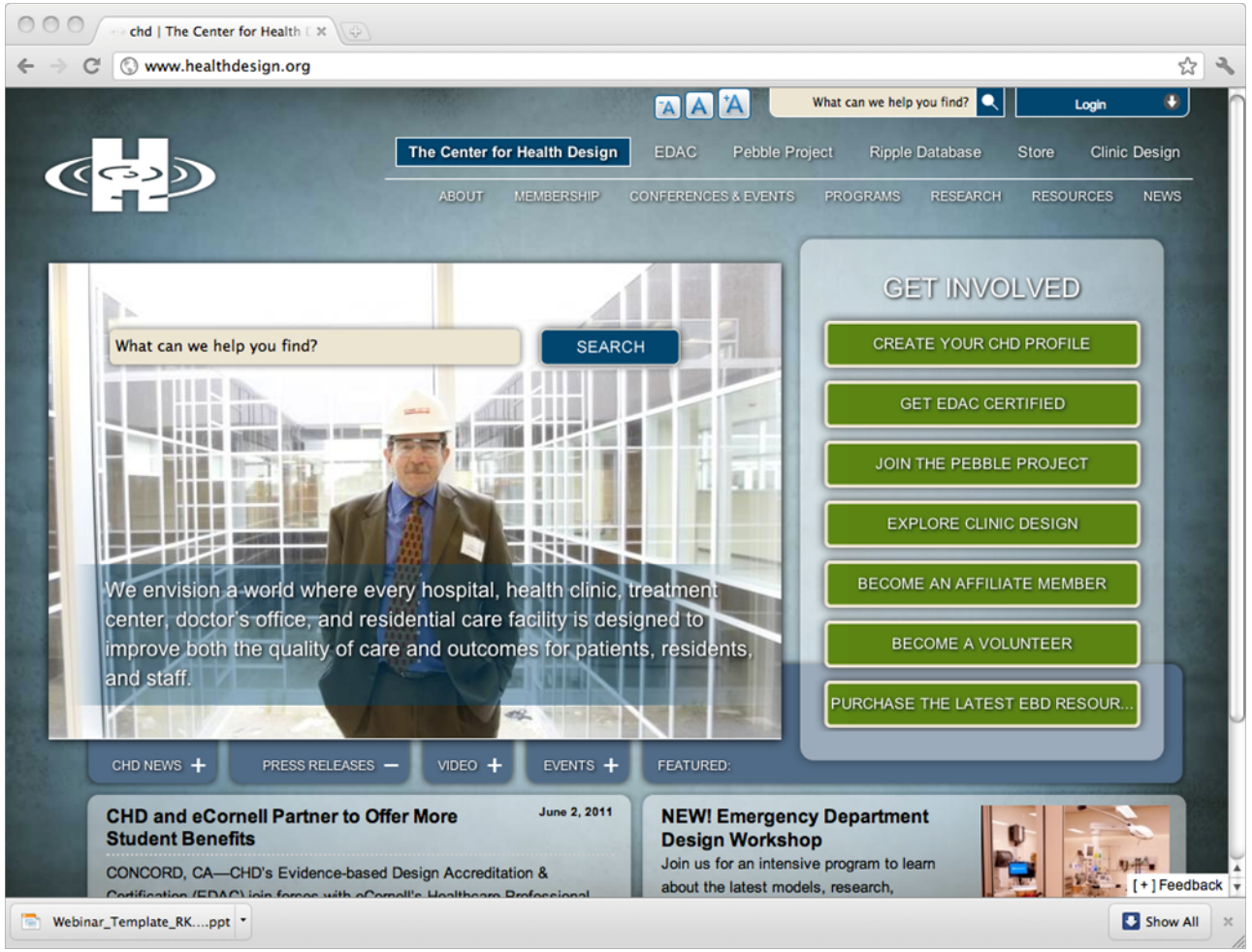
Design & Policy Guidelines



Based on work from
2005 AIA Latrobe Prize

EBP Examples: Architecture & Design

Design Resources



EBP Examples: Architecture & Design

Literature Reviews

Challenges for Evidence-Based Practice

As with research, EBP requires a commitment to iteration, feedback. Consumption and production.

Challenges for Evidence-Based Practice

Hamilton's Four Levels of Evidence-Based Practice

ACTIVITY		LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
Interpret the Evidence	Read material to stay current on emerging research.	*	*	*	*
	Use critical thinking to interpret implications of research on current project.	*	*	*	*
	Collect success stories and historical data on completed projects.	*	*	*	*
Hypothesize and Measure	Perform applied research as a practitioner on real projects.		*	*	*
	Hypothesize intended results of design interventions.		*	*	*
	Measure the results associated with design interventions		*	*	*
Share Results Publicly	Report unbiased project results in the public arena, writing and speaking.			*	*
	Perform independent 3rd-party postoccupancy evaluations.			*	*
	Improve understanding of research methods through advanced education.			*	*
Meet Academic Standards	Collaborate with credible academic researchers and social scientists.				*
	Publish research in peer-reviewed journals.				*
	Write academic thesis or dissertation on evidence -based design topic.				*

Redrawn from "The four levels of evidence-based practice," cited in Ahrentzen, 2006.

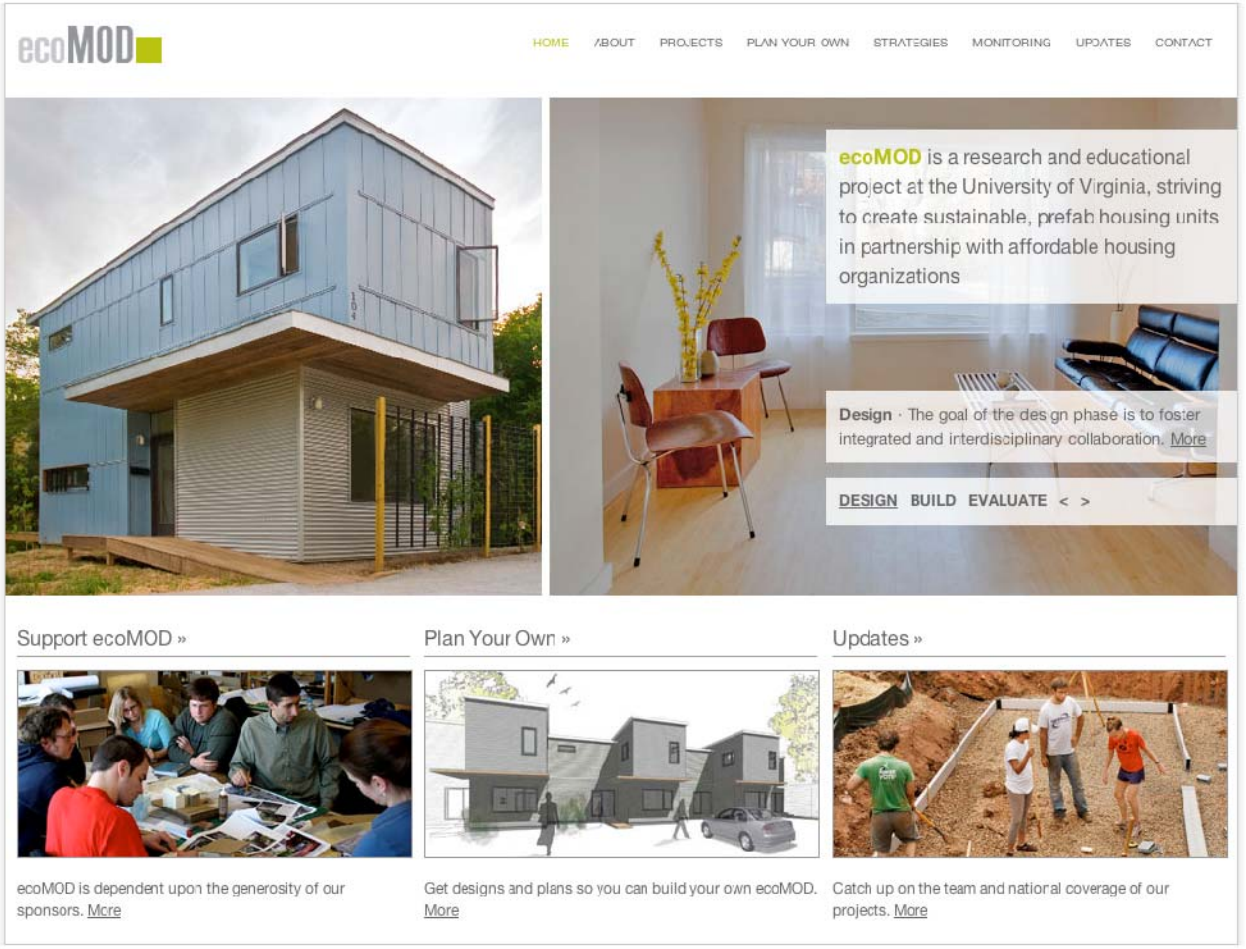
Challenges for Research in Pra

“Architects tend to see most acts of design as unique – a flywheel of initial input uninformed by past results marginally informed by performative information. Site and program together give rise to circumstance. Circumstance inspires intention. Design organizes intention into instruction. Builders construct from what we instruct. And we all move on to the next set of circumstances and program, none the wiser.”

Max Underwood, Stephen Kieran, and James Timberlake

Research in Practice (and Education)

ecoMOD, University of Virginia School of Architecture



Research in Practice (and Education)

ecoMOD1, OUTin

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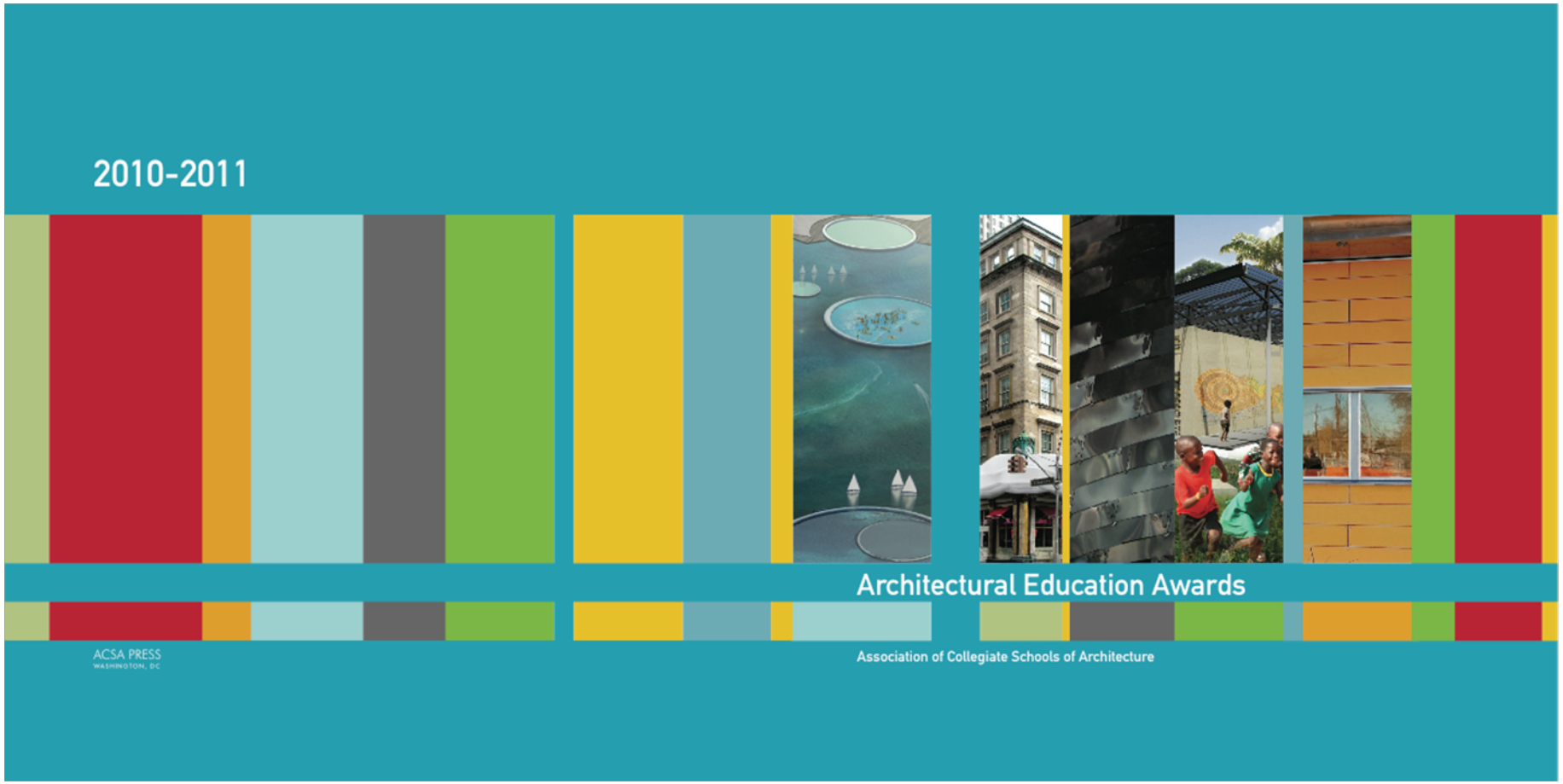
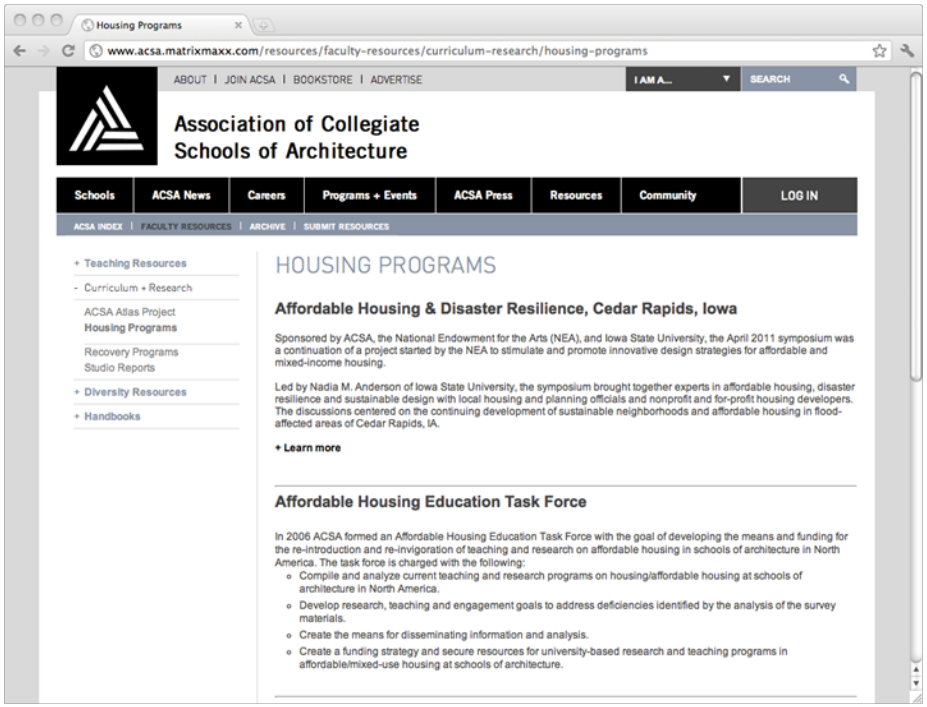
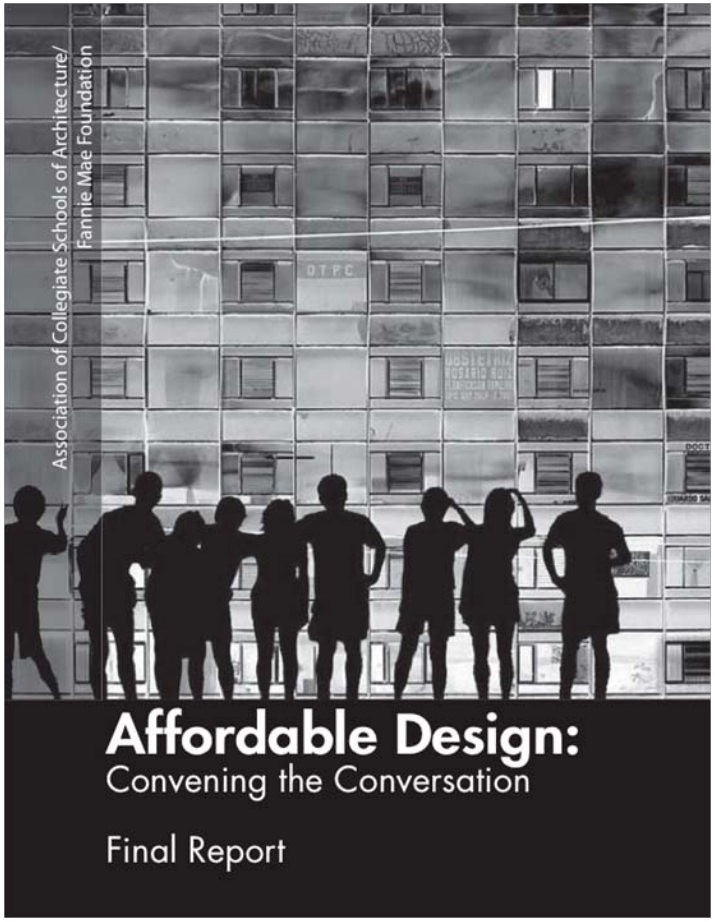
Research in Practice (and Education)



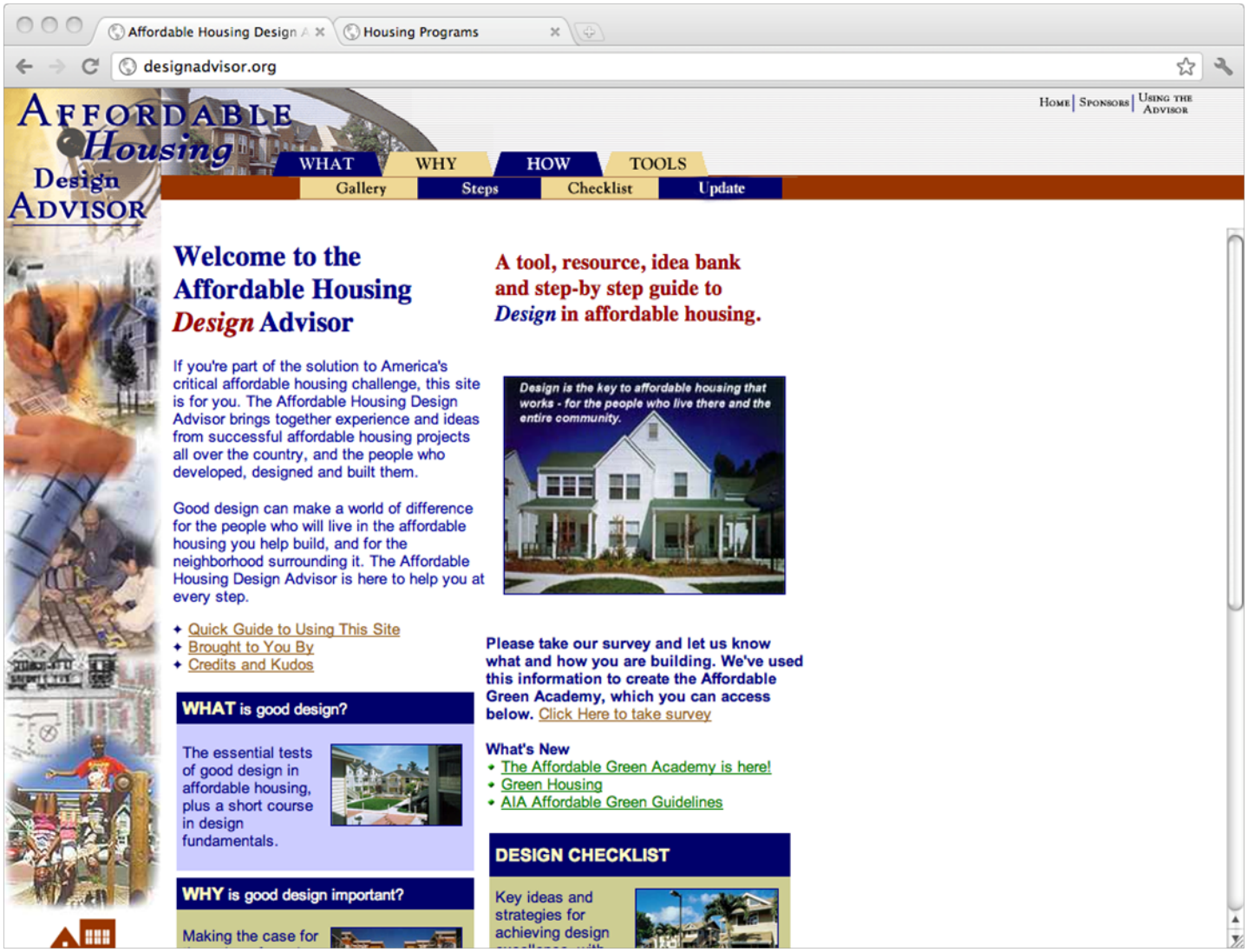
Research in Practice (and Education)

ACSA Housing Resources





Conclusion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WHY
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TOOLS
Gallery
Steps
Checklist
Update
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If you're part of the solution to America's critical affordable housing challenge, this site is for you. The Affordable Housing Design Advisor brings together experience and ideas from successful affordable housing projects all over the country, and the people who developed, designed and built them.
Good design can make a world of difference for the people who will live in the affordable housing you help build, and for the neighborhood surrounding it. The Affordable Housing Design Advisor is here to help you at every step.
Design is the key to affordable housing that works - for the people who live there and the entire community.
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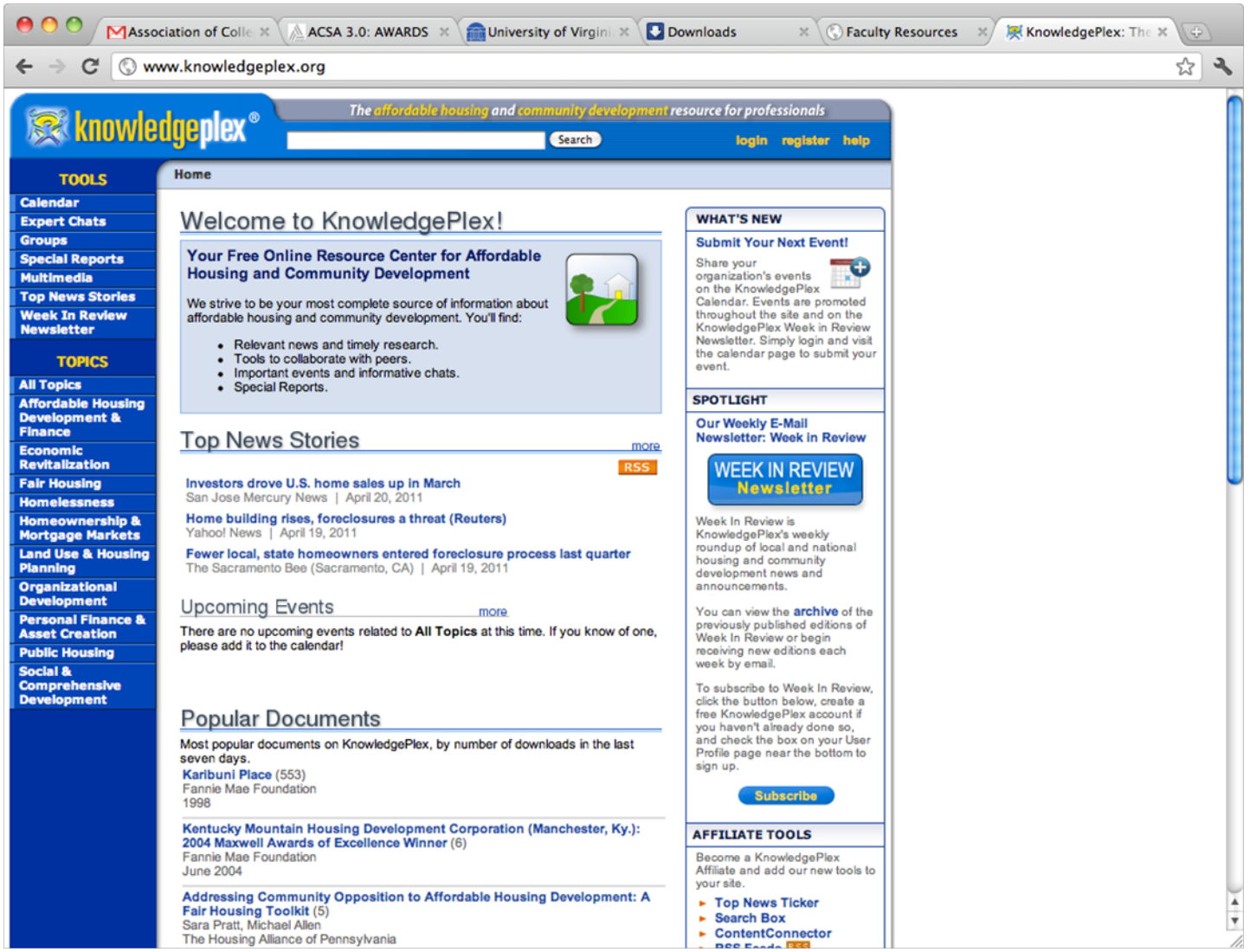
The Affordable Green Academy is here!
Green Housing
AIA Affordable Green Guidelines
WHAT is good design?
The essential tests of good design in affordable housing, plus a short course in design fundamentals.
DESIGN CHECKLIST
Key ideas and strategies for achieving design
WHY is good design important?
Making the case for

Conclusion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San Jose Mercury News | April 20, 2011
Home building rises, foreclosures a threat (Reuters)
Yahoo! News | April 19, 2011
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The Sacramento Bee (Sacramento, CA) | April 19, 2011
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Addressing Community Opposition to Affordable Housing Development: A Fair Housing Toolkit (5)
Sara Pratt, Michael Allen
The Housing Alliance of Pennsylvania
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Works Cited

Ahrentzen, S. (2006). “More Than Just Looking Good: Toward an Evidence-Based Design Practice in Affordable Housing,” in Affordable Design Convening the Conversation. Washington, DC: Association of Collegiate Schools of Architecture.

Groat, L., & Wang, D. (2002). *Architectural Research Methods.* New York: John Wiley & Sons.

Hamilton, D. K. (2003). “The Four Levels of Evidence-Based Practice,” *Healthcare Design Magazine* 3. Accessed 9/5/11, http://www.healthcaredesignmagazine.com/Past_Issues. htm?ID=2922

O’Donnell, M. (2007). *The Culture of Research.* American Institute of Architects, accessed 9/5/11, http://info.aia.org/researchsummit/culture_of_research/Culture_of_Research.pdf.

Snyder, J. C. (1984). *Architectural Research.* New York: Van Nostrand.

Stokes, D. E. (1997). *Pasteur's Quadrant: Basic Science and Technological Innovation.* Washington, DC: Brookings Institution Press.

Resources

Affordable Housing Design Advisor. http://designadvisor.org/

Association of Collegiate Schools of Architecture. http://www.acsa-arch.org/ Explore Resources and Awards for information on: ACSA/AIA Housing Award, *Affordable Design: Convening the Conversation* and other Housing Programs, and the ACSA Index, a searchable database of ACSA proceedings.

Dorgan, K., Monti, M. J., & Wright, K. (2008). “Design and Disaster: Higher Education Responds to Hurricane Katrina” (entire issue). *Cityscape*, 10:3. Available at http://www.huduser.org/portal/periodicals/cityscpe/vol10num3/index.html

ecoMOD. http://ecomod.virginia.edu/

Knowledgeplex. http://www.knowledgeplex.org/

AIA Board Knowledge Committee 2007 Research Summit. http://info.aia.org/researchsummit/index.html

Speaker: Jamie Horwitz, PhD

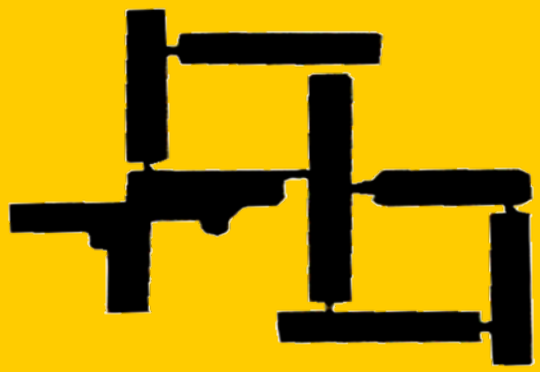
Associate Professor
of Architecture

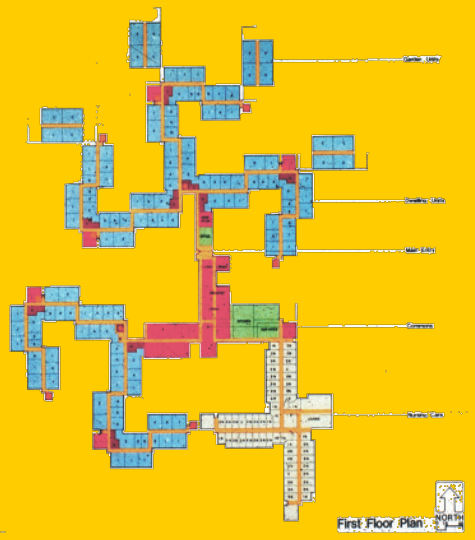
Iowa State University

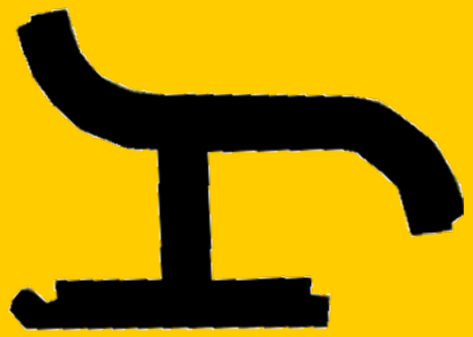
WHAT ARE THE BENEFITS OF PLAN CONFIGURATIONS FOR RESIDENTS OF CCRC's ?

Continuing Care Communities

Jamie Horwitz PhD Associate Professor of Architecture, Iowa State University







The “continuum of care” in the 1970’s Life Care Communities:

--fully independent apartments (about 300) gardens and walking paths,

--a congregant dining room plus library/ living room, store or bank,

--a skilled nursing wing (about 90 beds)

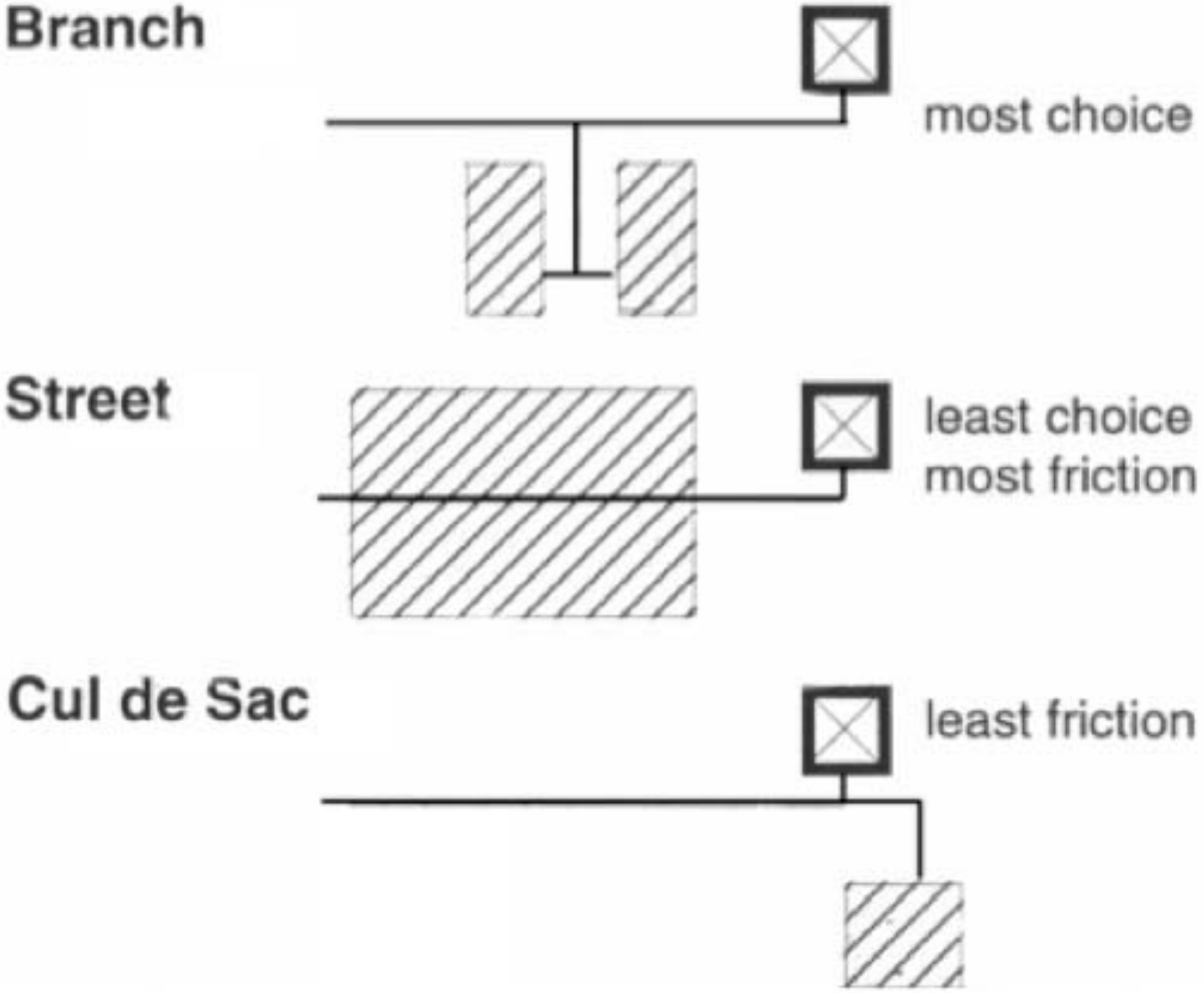
--guaranteed care for life for non-refundable buy-in and monthly maintenance.

A good-enough reason to start…..:

“Could you find out if residents are getting lost in a building I designed?”

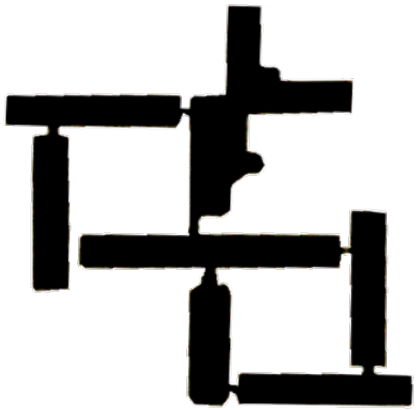
Mark C. Engelbrecht, EGA

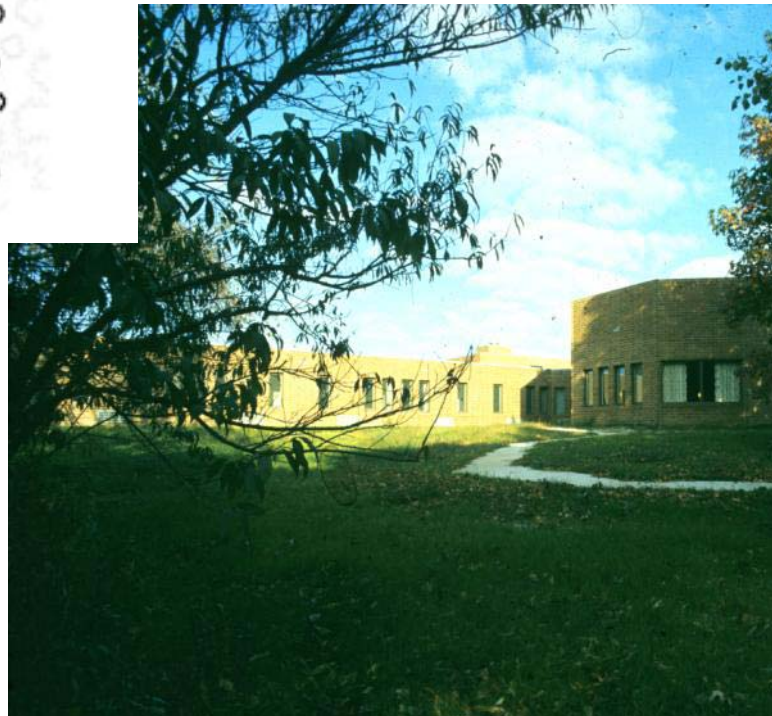
The relations between paths and activity spaces



Derived from work by: Sandra Howell, Gayle Epp and Polly Welch

The back story

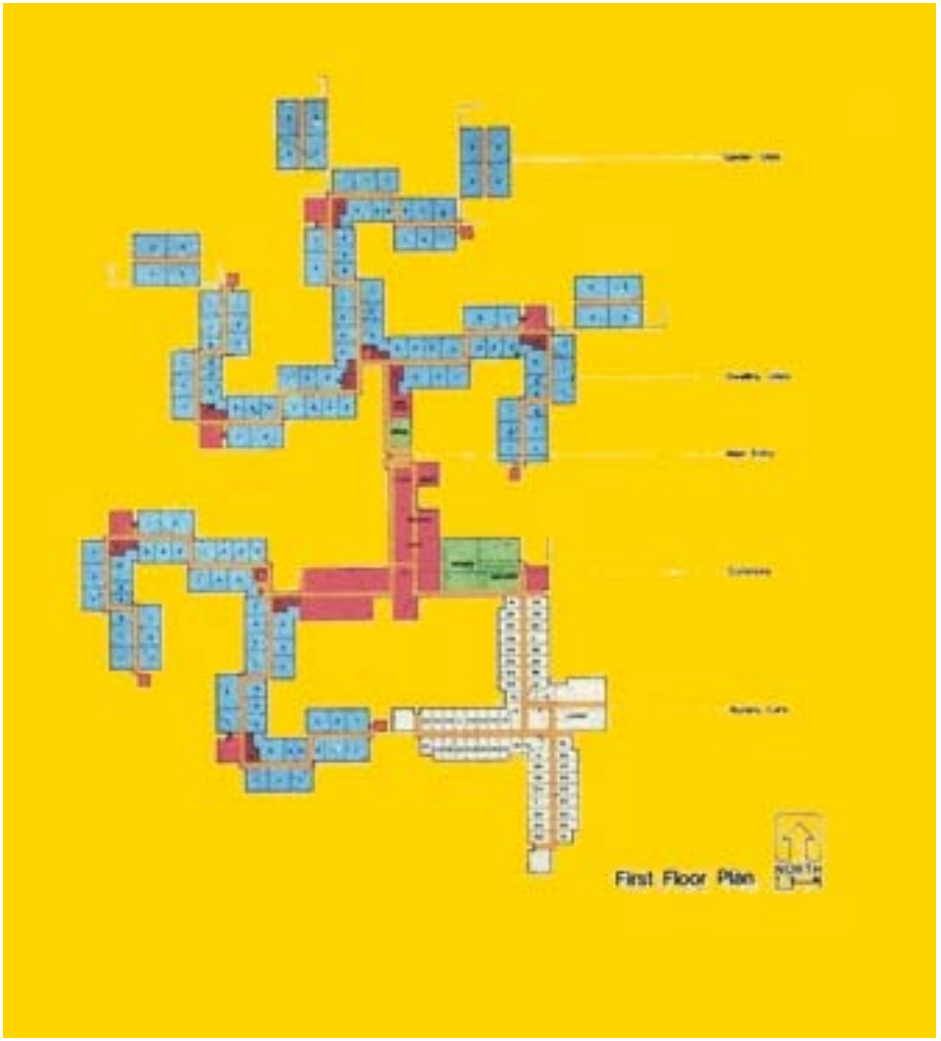


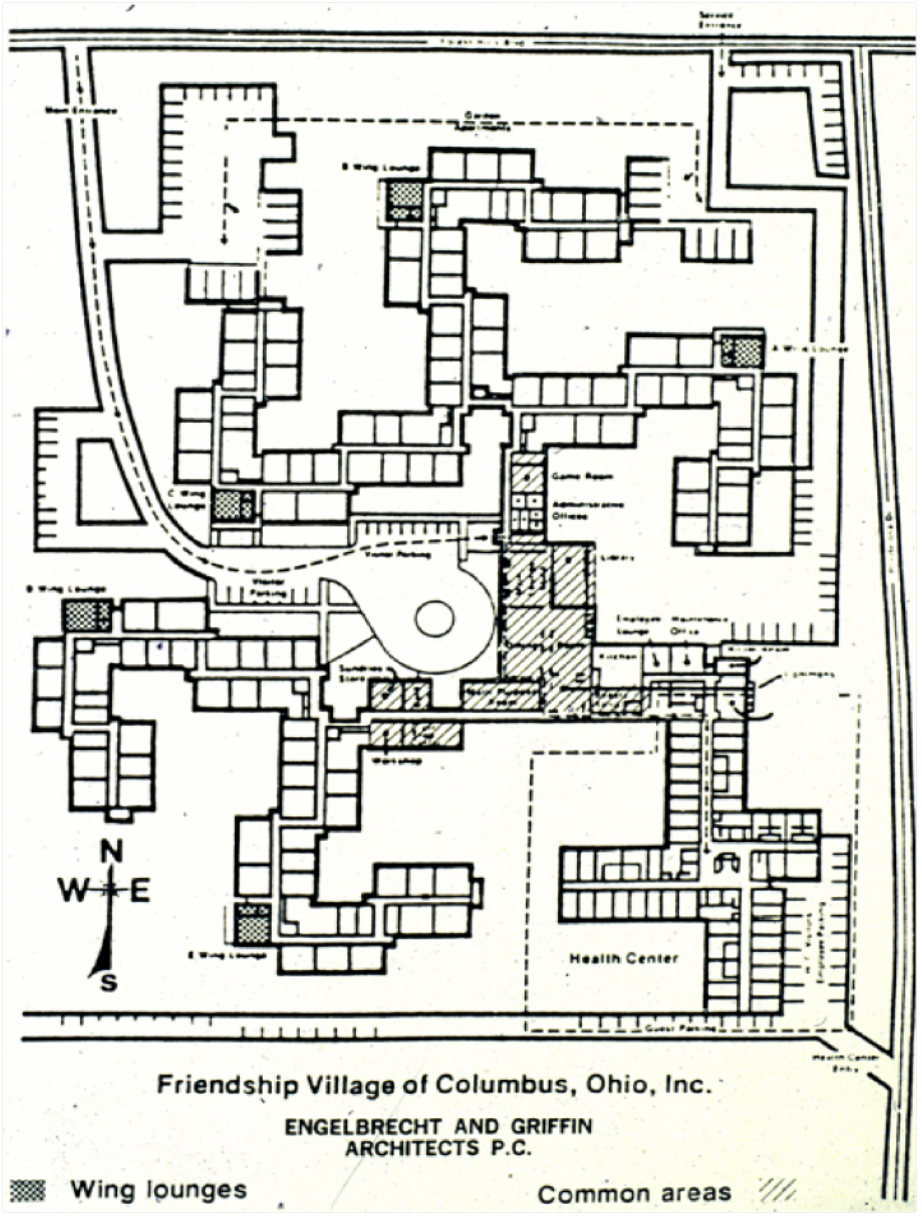


In the early 1970s EGA had designed a prototype CCRC for Life Care Services, Des Moines IA based on FVWC (above). The model was repeated 4 times when LCS invited EGA to respond to an exurban site twice as large. EGA seized the opportunity to correct what they perceived to be an overly compartmentalized expression of the program's components, with no overlapping spaces between.

EGA architects: ***now we can***

thread the commons through the community--



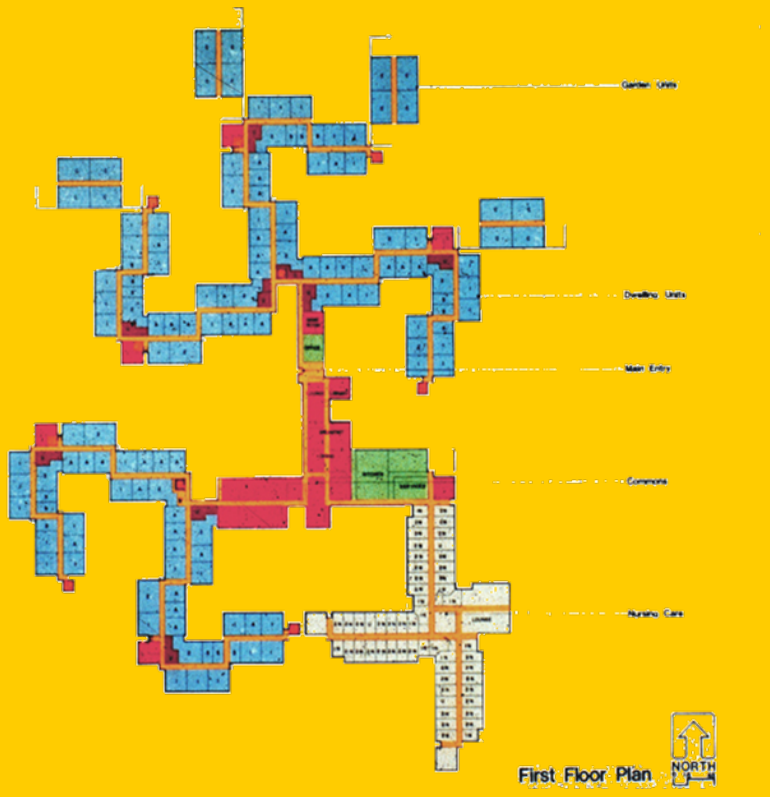


The realization broke away from the prototype is a low-rise, pinwheel With five wings wrapping around multi-access courts the building encloses 174,000 square feet on a 20 acre site.

Using a system of short double loaded corridors (5-8 units each) that face windowed rest areas at each 90 degree turn.

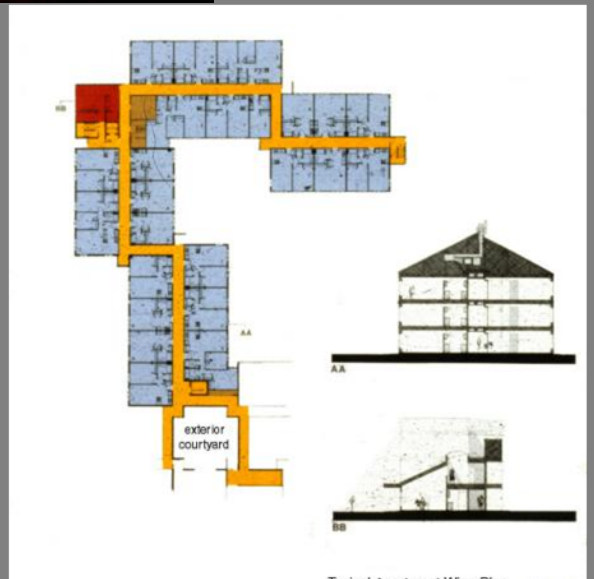
Stretching and breaking many CCRC rules of thumb, FVC increased the travel distance between apartments & dining commons up to 500 feet for some apartments.

Architect's intentions form evaluative questions



- Do wing lounges support neighborhood identity?
- Is the building perceived as a system of linked commons?
- Is spatial complexity a benefit or a barrier?

Wing Lounges



The ecology of common spaces

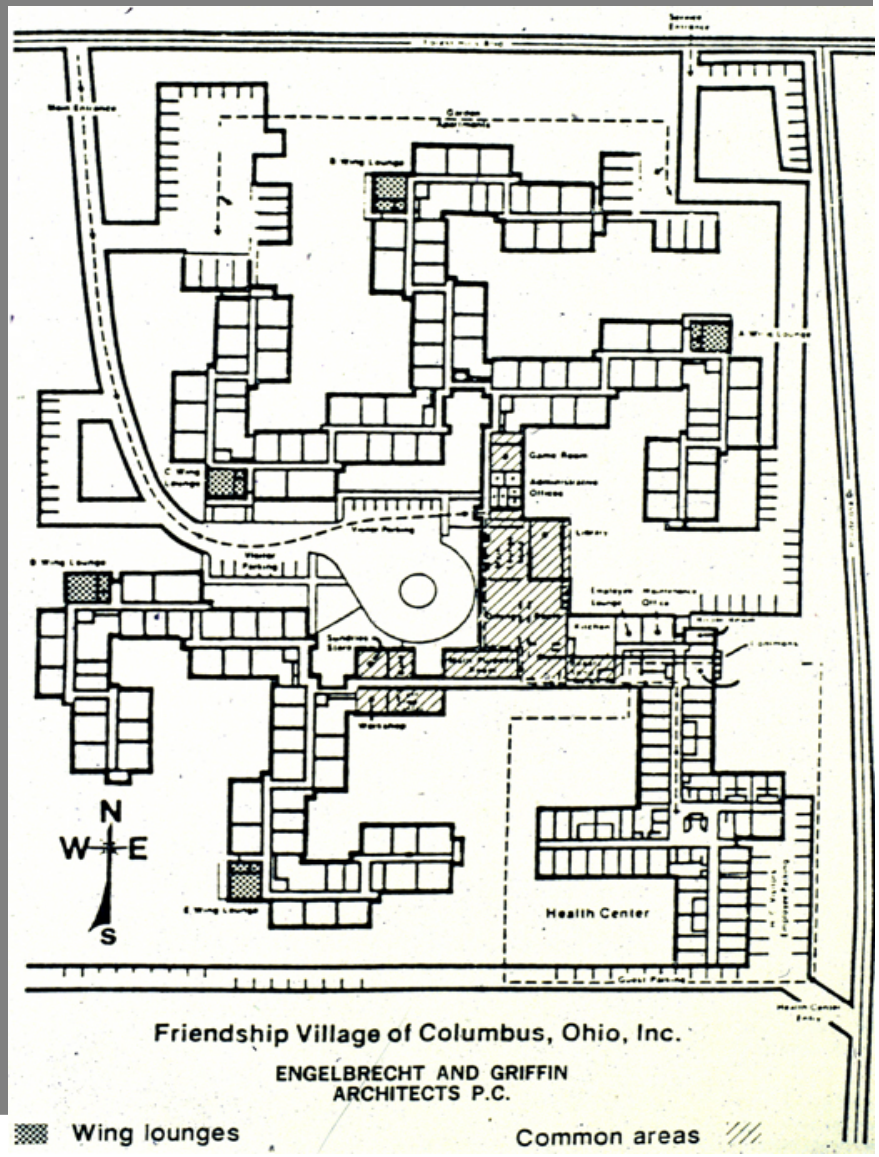
Low commitment space

- Main Lounge is:
  - Transition space
  - Charged by traffic (from entry)
  - Semi-public
  - For the newcomers
  - For people who loaf.

High commitment space

- Wing Lounge is:
  - Destination space
  - Charged by activity (from parking)
  - Semi-private
  - For people who plan & play

Residents response to circulation



- **More choices / walks with rest areas better –less institutional!**
- **Distance is a manageable challenge**
- **Being turned around isn't a real problem.**
- We can **blame the architecture not memory**

What explains the pattern of resident satisfaction?

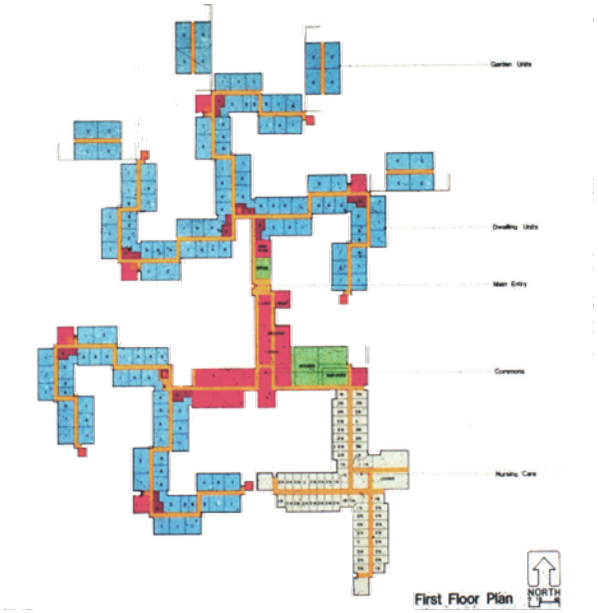
- Age
- Length of residence
- Health
- Gender
- Place

Research comparing the architecture of Life Care Communities were all designed by **Englebrecht & Griffin Architects** in mid-1970s

All three are "all-inclusive" model: one meal, laundry, cleaning & guaranteed nursing care without additional charge.Entry fee and monthly maintenance (keyed to size of independent apartments with modified kitchen) was not-refundable (at time of interviews, no return of capita)l.

All three were formed by local not-for-profit boards who contracted with **Life Care Services** (Des Moines) to oversee development, design and construction. and all were leased back to Life Care Services who still manages them I was hired by EGA to conduct the study, LCS provided access and information and set conditions on publications.

CCRC's with 3 configurations puts into question the power of shared spaces



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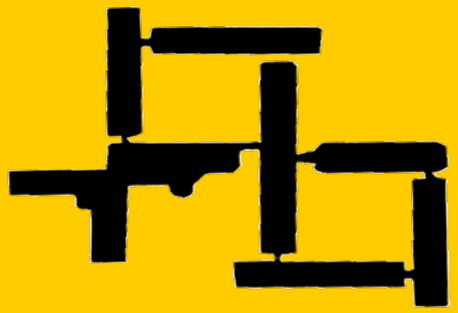

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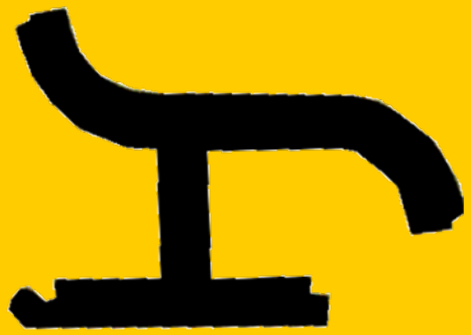
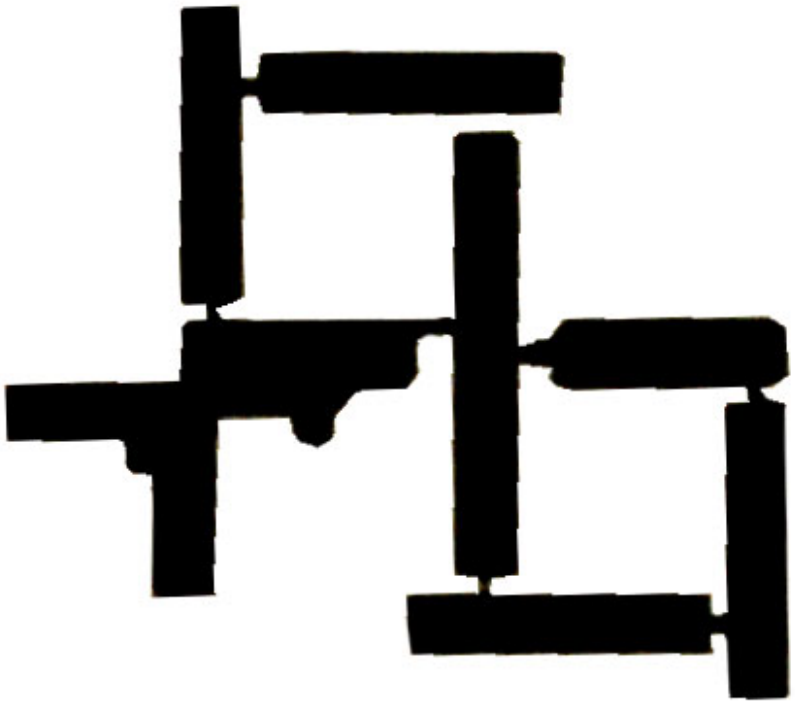


Split Commons

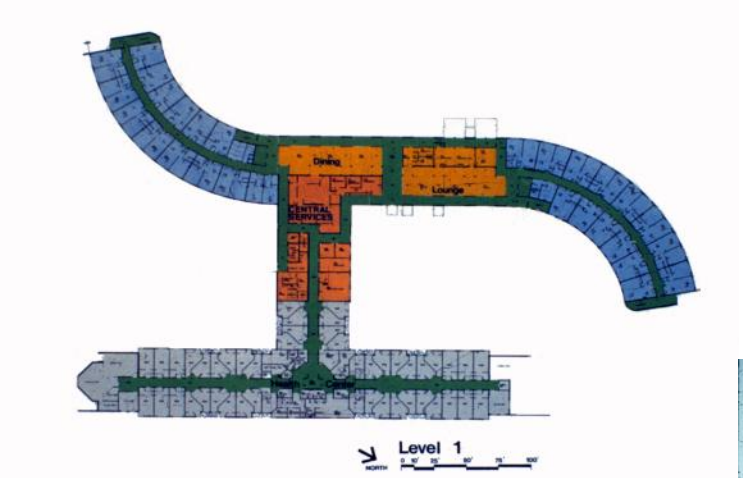


Centralized Commons

Friendship Village West
County St. Louis

SPLIT COMMONS

Split Commons



Good Company/ Good Times

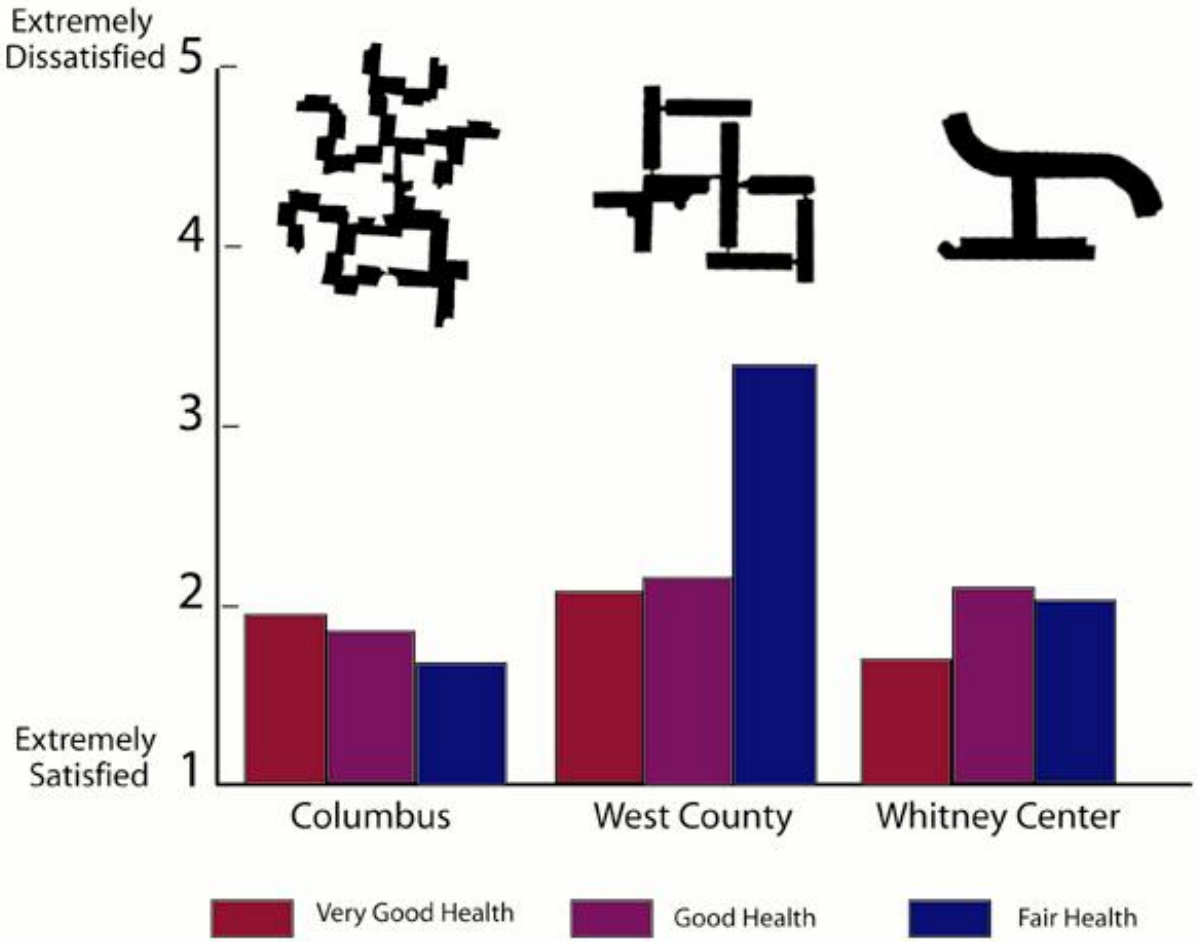
Mean Level of Satisfaction

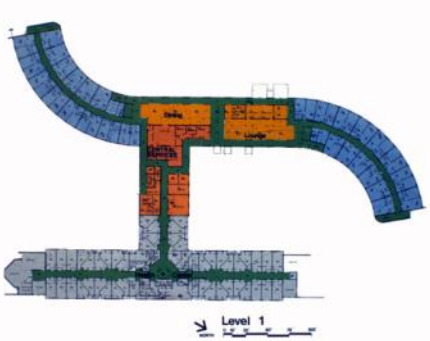
	Columbus	West County	Whitney Center
Recreation Facilities	1.99	2.32	2.20
Good Company	1.63	2.00	1.82
Social Activities	1.70	2.06	1.78
Lounges in Residential Wings	1.67	1.85	2.02
Arts and Crafts	2.00	2.02	2.31
Physical Fitness Activities	2.23	2.89	3.27
Experiencing New Things	2.24	2.38	2.32
Ease of Orientation	1.63	1.94	1.71
Places for Socializing	1.97	1.83	2.27
Overall Mean:	1.90	2.14	2.19

Distance to the Dining Room

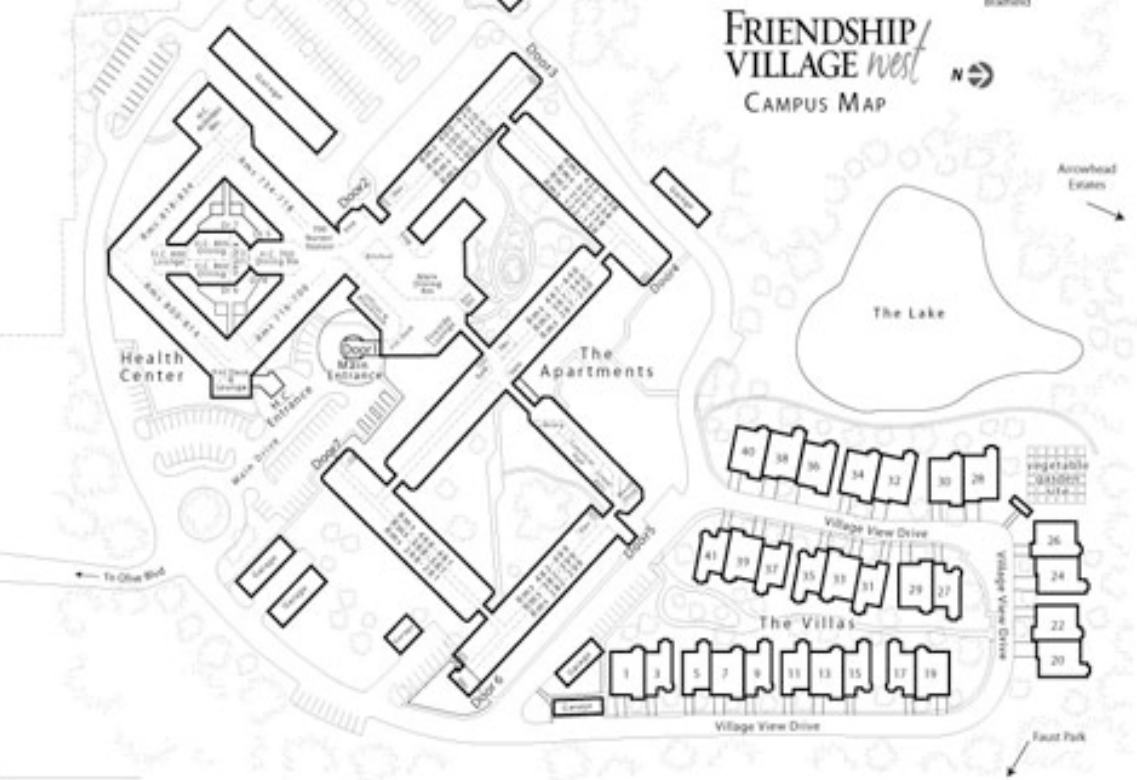
Resident Satisfaction with Distance between Apartment and Dining Room was measure against Building Plan and Perceived Health of Residents.

Building Plan was significant; p=0.006
Building Plan by Health interaction was significant; p=0.0198

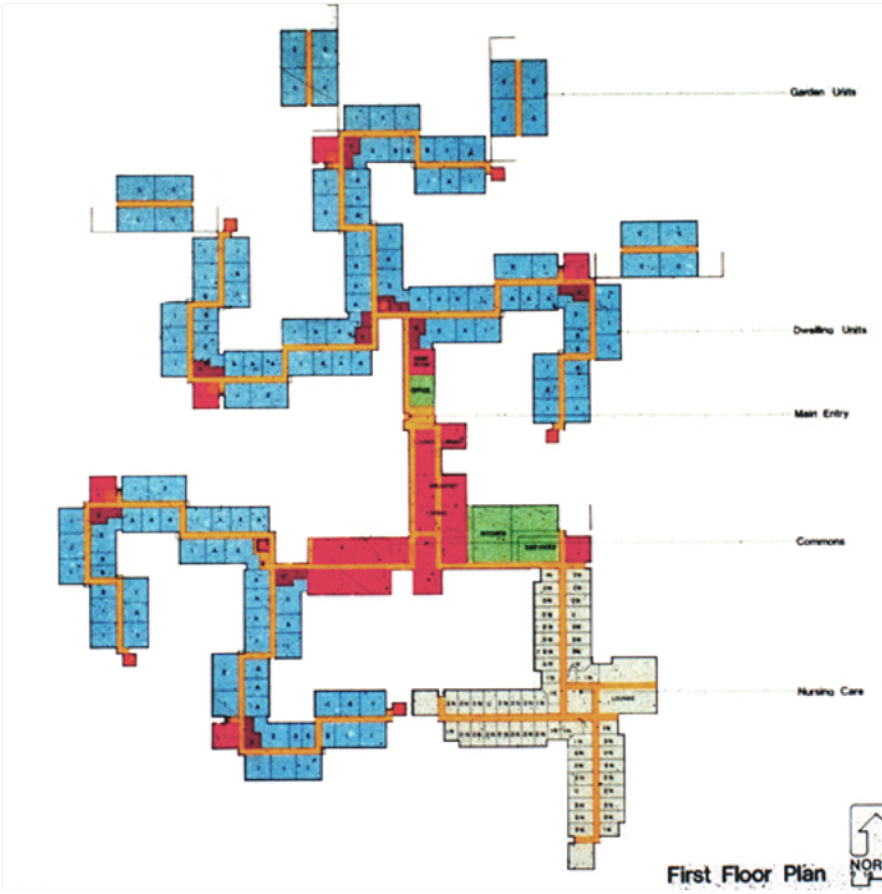


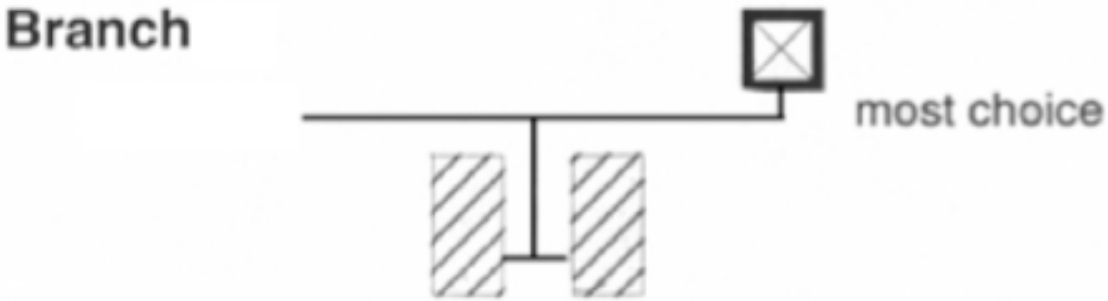

Level 1

Cul de Sac
least friction


FRIENDSHIP VILLAGE west
CAMPUS MAP
N
Arrowhead Estates
The Lake
Health Center
Main Entrance
HC Entrance
The Apartments
Door 1
Door 2
Door 3
Door 4
Door 5
Door 6
Door 7
Door 8
Door 9
Door 10
Door 11
Door 12
Door 13
Door 14
Door 15
Door 16
Door 17
Door 18
Door 19
Door 20
Door

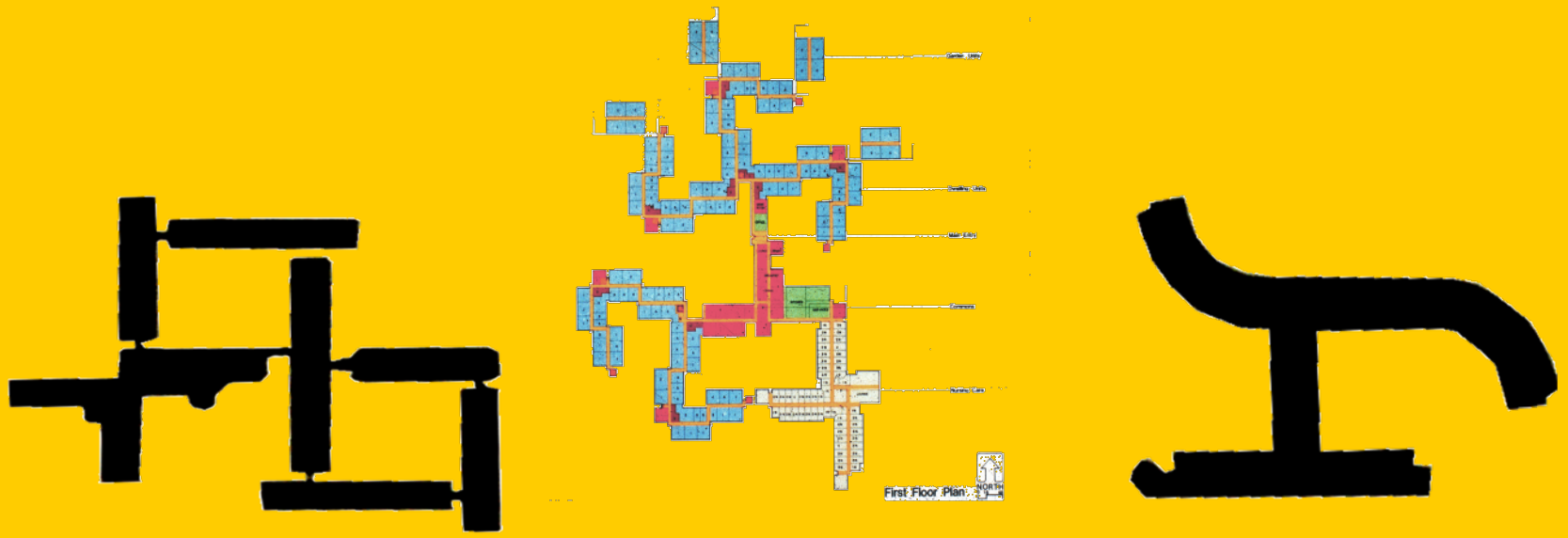
DISTRIBUTED COMMONS





Continue learning about the distributed commons…..

WHAT ARE THE BENEFITS OF PLAN CONFIGURATIONS FOR RESIDENTS OF CCRC's ?

Continuing Care Communities

Jamie Horwitz PhD Associate Professor of Architecture, Iowa State University