Prefabricated Residential Construction

ARCH 030 term project
Spring 2005

Ed Swierk
The range of prefab

- Manufactured
- Panelized frame
- Logs + straw
- Mobile
- Modular frame
- Traditional frame

More off-site construction → More on-site construction
Structural insulated panel (SIP) fabrication

Kornylak block mold panel machines
Structural insulated panel (SIP) fabrication

Adhesive Systems Technology SIP assembly line
SIP construction

SIP Wall-to-Foundation Connection

- Subfloor
- Floor joist
- Bottom plate
- Mudsill designed for a specific load
- ½-in. treated plywood spacer
- Concrete
- Insulated concrete form (ICF)
- Waterproof membrane
- Exterior finish
- Termite shield
SIP construction

Andy Asberry home
http://www.asberry.net/
SIP construction

Andy Asberry home
http://www.asberry.net/
SIP construction

Andy Asberry home
http://www.asberry.net/
SIP construction

Andy Asberry home
http://www.asberry.net/
SIP construction

Andy Asberry home
http://www.asberry.net/
SIP construction

Andy Asberry home
http://www.asberry.net/
SIP construction

Andy Asberry home
http://www.asberry.net/
SIP construction
Modular fabrication

MK Glidehouse
Modular fabrication

MK Glidehouse
Modular fabrication

MK Glidehouse
Modular fabrication

MK Glidehouse
Modular fabrication

MK Glidehouse
Modular fabrication

MK Glidehouse
Modular construction

MK Glidehouse
Modular construction

MK Glidehouse
Modular construction

MK Glidehouse
Modular construction

MK Glidehouse
Modular construction

MK Glidehouse
Modular construction

MK Glidehouse
Standardized vs. customized

Generic Dwelling Corp.

Choose one:

- Small
  - $599,000
- Big
  - $899,000

Saratoga Custom Homes

A design+build company

Bill M. Bythehour, AIA
President
Standardized vs. customized

Generic Computer Corp.
Choose one:

- Desktop $599.00
- Laptop $899.00

saratoga custom computers
a design+build company

Bill M. Bythehour, AICA president
A third way: constrained customization

### SYSTEM OPTIONS

#### Memory

When Integrated Graphics is selected, up to 128 MB of system memory may be allocated to support graphics, depending on system memory size and other factors.

- **256MB DDR2 SDRAM at 400MHz (1x256M)**
- **512MB Dual Channel DDR2 SDRAM at 400MHz (2x256M) [add $40 or $1/month]**
- **1GB Dual Channel DDR2 SDRAM at 400MHz (2x512) [add $150 or $5/month]**
- **2GB Dual Channel DDR2 SDRAM at 400MHz (4x512M) [add $470 or $14/month]**
- **4GB Dual Channel DDR2 SDRAM at 400MHz (4x1GB) [add $1,099 or $33/month]**

#### Hard Drive

- **40GB Serial ATA Hard Drive (7200RPM)**
- **80GB Serial ATA Hard Drive (7200RPM) [add $20 or $1/month]** **Dell Recommended**
- **160GB Serial ATA Hard Drive (7200RPM) [add $70 or $2/month]**
- **250GB Serial ATA Hard Drive (7200RPM) [add $140 or $4/month]**
A third way: constrained customization

SUNSET BREEZEHOUSE™
Choosing a plan // exterior

Option 1: Horizontal Cedar Wood Siding

Option 2: Cement Board

Option 3: Painted cement board in a variety of plant inspired colors

Choosing a plan // roof

Option 1: Flat Overhang Roof

Option 2: SLOped Roof

Option 3: Front Butterfly Roof

Option 4: Side Butterfly Roof
Prefab history

- **Sears & Roebuck**
  - 1908–1940

- **Lustron**
  - 1948–1950

- **Lindal Cedar**
  - 1950s–today
Productized architecture

• Emphasis on *process*, not just product
  – production, suppliers
  – marketing, customer experience
  – sales
  – pricing strategies

• Opportunities for architects to expand their skills beyond design
Productized architecture: Glidehouse process example

1. Client chooses plan and options, arranges financing.
2. Client works with architect on any customizations.
3. Plan submitted to factory for final pricing.
4. Factory representative submits for permit.
5. Factory builds Glidehouse while factory rep oversees foundations, utility lines and site work.
6. 4 to 6 months later, Glidehouse arrives in 2 truckloads, with all finishes, plumbing, electrical.
7. Factory rep completes “button up” work, owner moves in within 2 weeks of Glidehouse arrival.
Prefab future

Clever Homes

Michael Graves Pavilion

MK Glidehouse
For more information

- Project report and presentation slides: http://tinyurl.com/dotfn
- Many more current prefab projects: http://www.fabprefab.com/
- Sunset Breezehouse debut: May 21–22, Willow @ Middlefield, Menlo Park