IPRO 301
Back to the House of the Future

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IPRO 301 Introduction

• Project Background
  – 1983 International House of the Future Competition
  – IPRO 301 Sustainable Village 2005
Subteam Organization

• Systems and Concepts
  – Develop modular design system

• Products and Technologies
  – Research and implement internal systems for HVAC, water, energy

• Code and Safety
  – Research building code and health/safety concerns
● Objective
  - Produce a conceptual solution for the development of a “House of the Future” product

● Concept Proposal
  - A modular component housing solution that will address the flexibility and sustainable needs in the future
What is a Module?

Component of a system designed for easy assembly and flexible use
Benefits of Modular Design

- Construction
- Sustainable Design
- Transportation
- Maintenance
- Economical
2 and 3 Bedroom Configurations

- Living and Dining
- Kitchen and Bath
- Bedrooms

3 Bedroom Plan Proposal
Building Systems
Building Structure

Screw Pile Piers Foundation System

Sandwich Panel Floor Deck System
Snap-Lock Wall System

Benefits
- Flexibility
- Removable Connection
- Reuse

Panel Connection

Wall to Wall

Window to Wall

Joint
Resource Efficient Plumbing

1. Easy to **INSTALL**
2. Efficient and Speedy Delivery of hot and cold water
3. Simplified retrofit of a Gray–water reuse system for future

**Tankless water Heater**

**Plumbing Manifold**

**Low flow Fixture**

**Air Admittance Valve**

**Gray–Water System**
Mechanical Systems

Decentralized HVAC System

Ceiling Concealed Fan Coil

- Quiet centrifugal fan assembly
- High-efficiency coil
- Removable, cleanable and positively sloped drain pan designed to promote good indoor air quality
- Service friendly manual air vent
- Insulated return air plenum
- Terminal box
- Field-flexible piping connections
- Top panels have foil face insulation to prevent fibers from entering airstream for high IAQ
Energy Systems

Solar Panels  Cylindrical wind turbine  Solar shingles  Geothermal Energy
• Safety Considerations
  - Codes regarding:
    • Residential Building, Fuel and Gas, Existing Building, Energy Conservation, Residential, Zoning, Fire Protection, etc.
  - Regulations regarding:
    • Energy
    • Waste
  - Safety issues:
    • Fire Protection
    • Occupant Health
    • Community Health
  - Green Permit Eligibility
    • Ecological Concerns
IPRO 301 Conclusion

• The Future of the “House of the Future”
  – Future Technologies
  – Cultural and Climatic Changes
  – Sustainability and Environmental Concerns
  – Production and Construction Costs
IPRO 301

- Team Challenges
  - Project Goal and Objective
  - Dynamics of Subteams
  - Communication
  - Time
Thank You