

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

concept

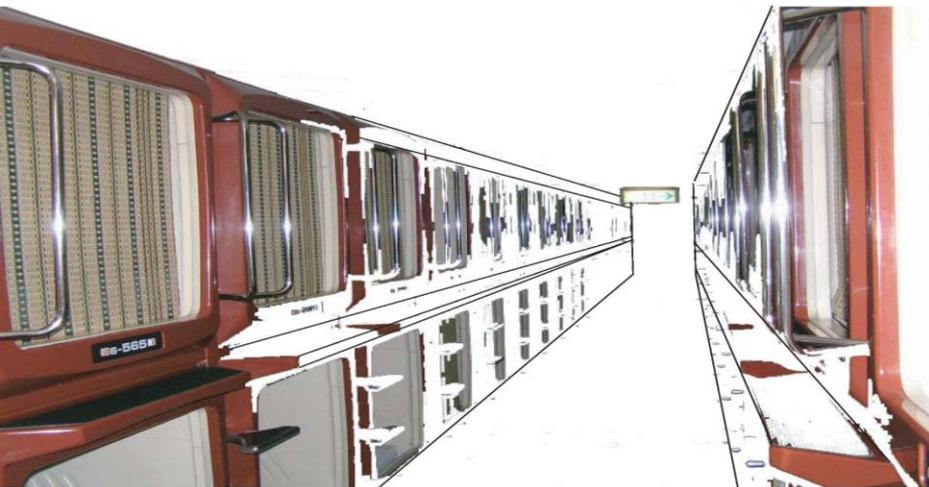
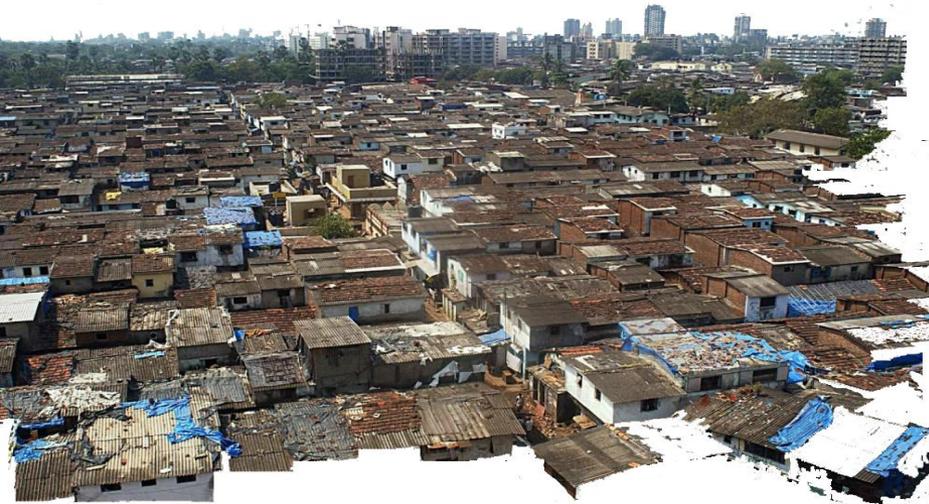
module

space

house

systems

safety



concept

module

space

house

systems

safety

- **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

concept

module

space

house

systems

safety



What is a Module?

Component of a system designed for easy assembly and flexible use

concept

module

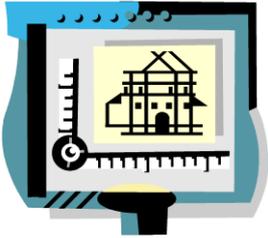
space

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systems

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Benefits of Modular Design



Construction

Maintenance

Sustainable Design

Transportation

Economical

concept

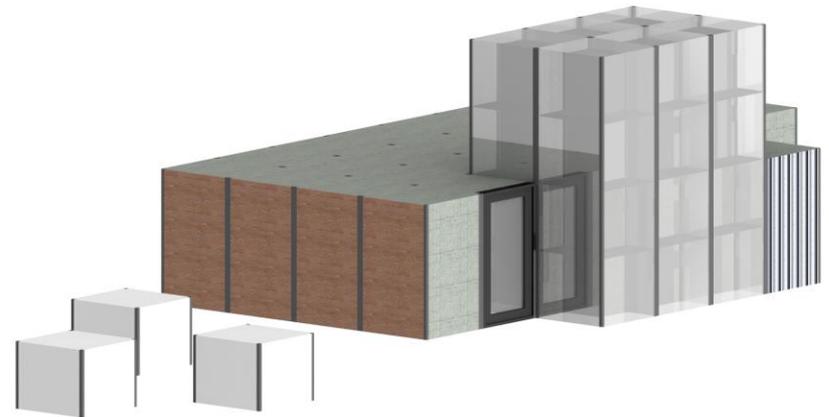
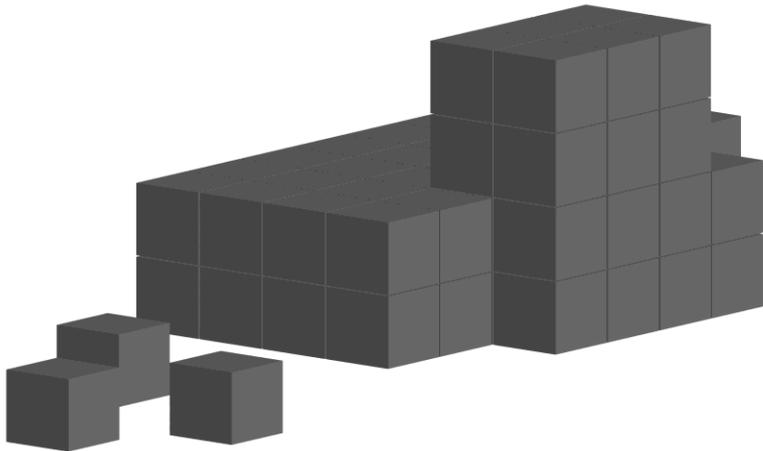
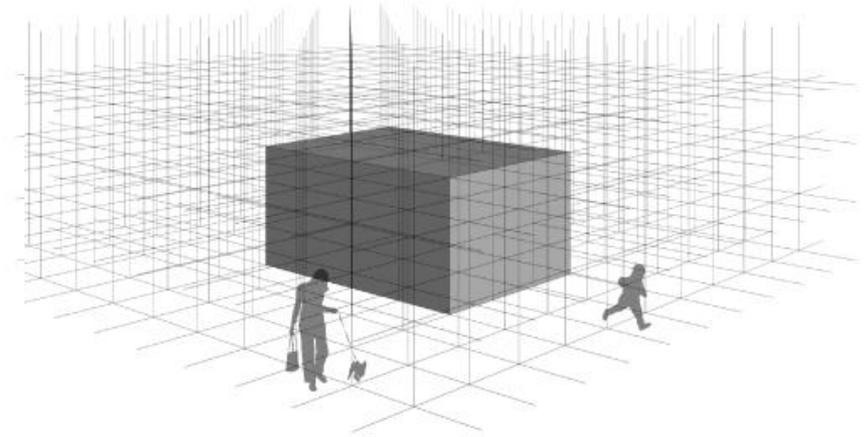
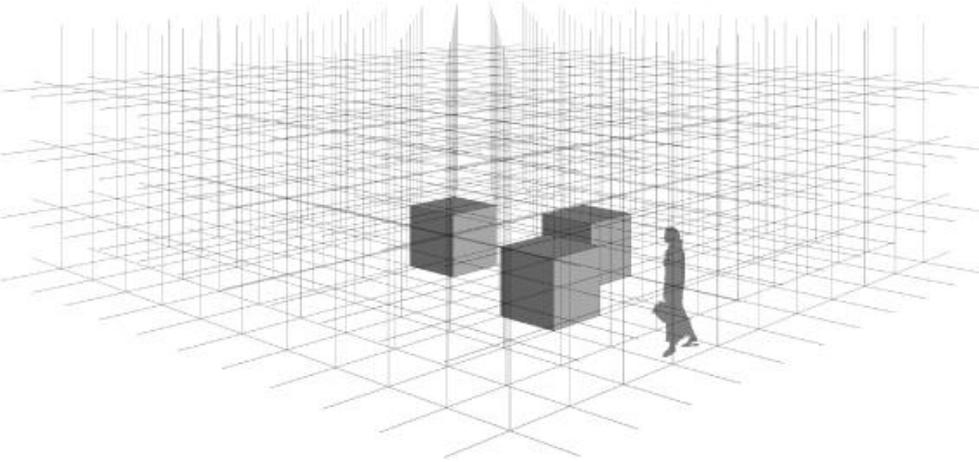
module

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concept

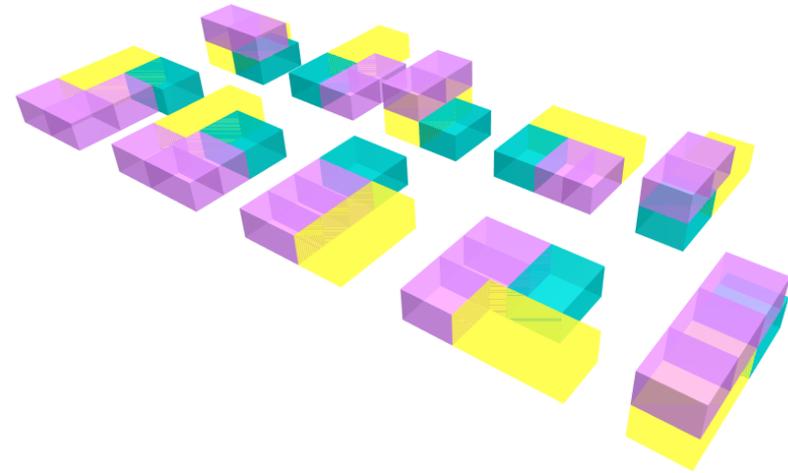
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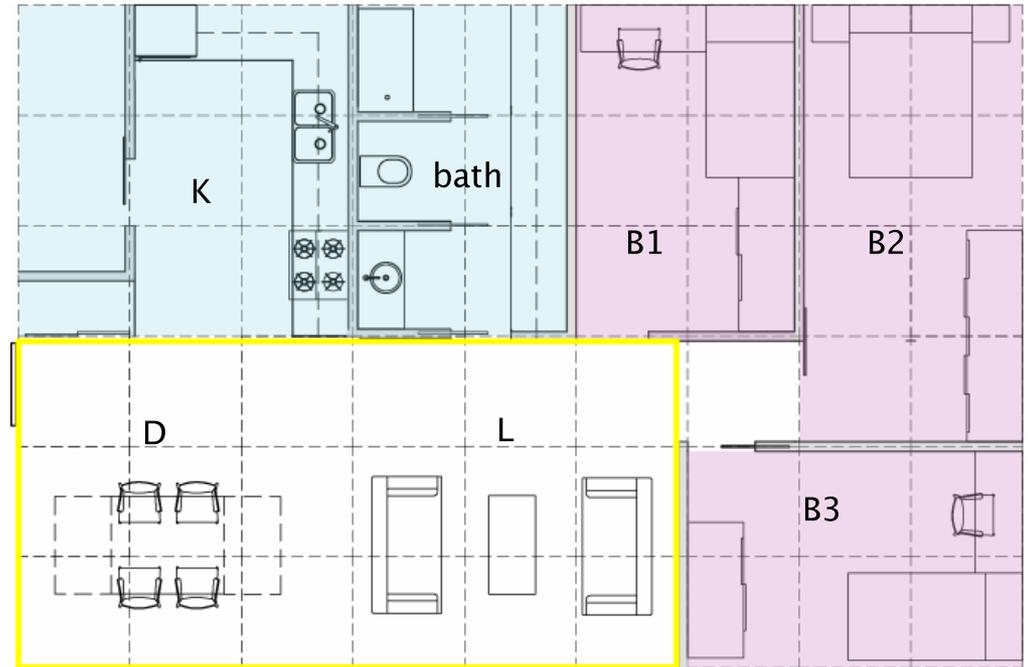
systems

safety



2 and 3 Bedroom Configurations

-  Living and Dining
-  Kitchen and Bath
-  Bedrooms



3 Bedroom Plan Proposal

concept

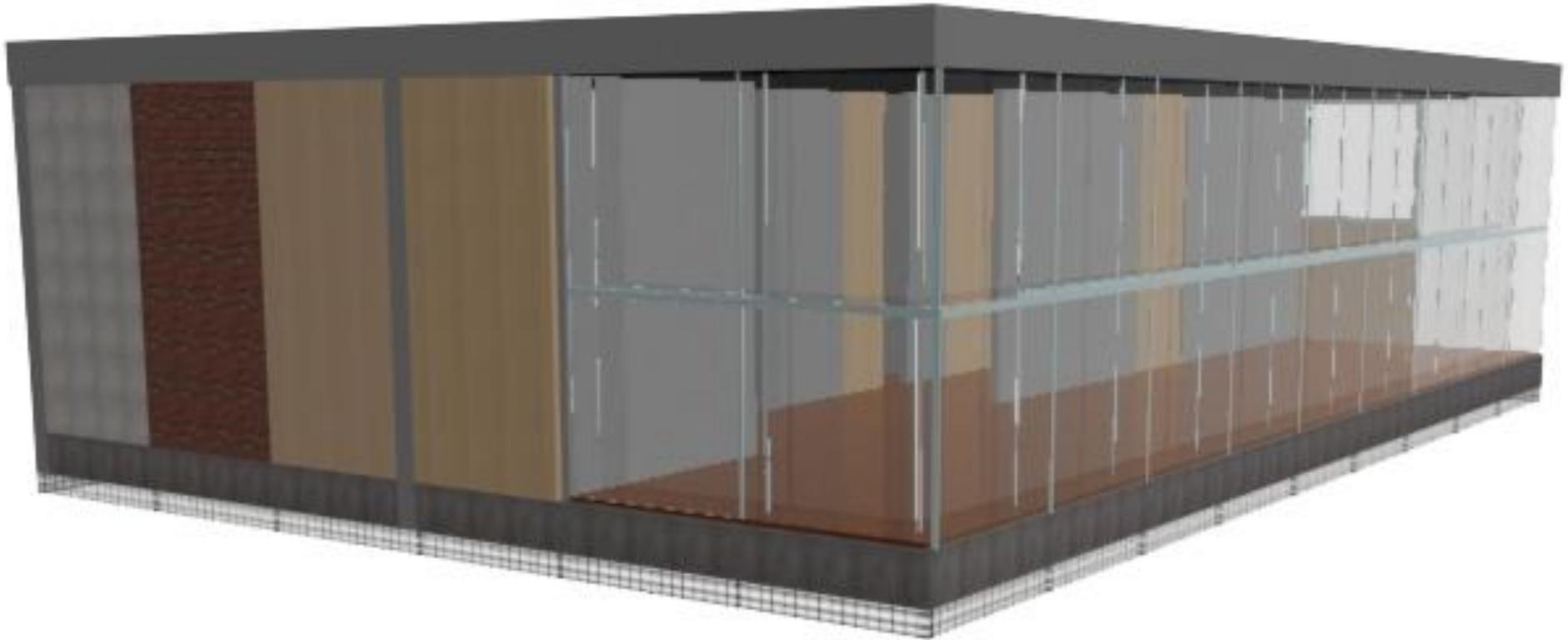
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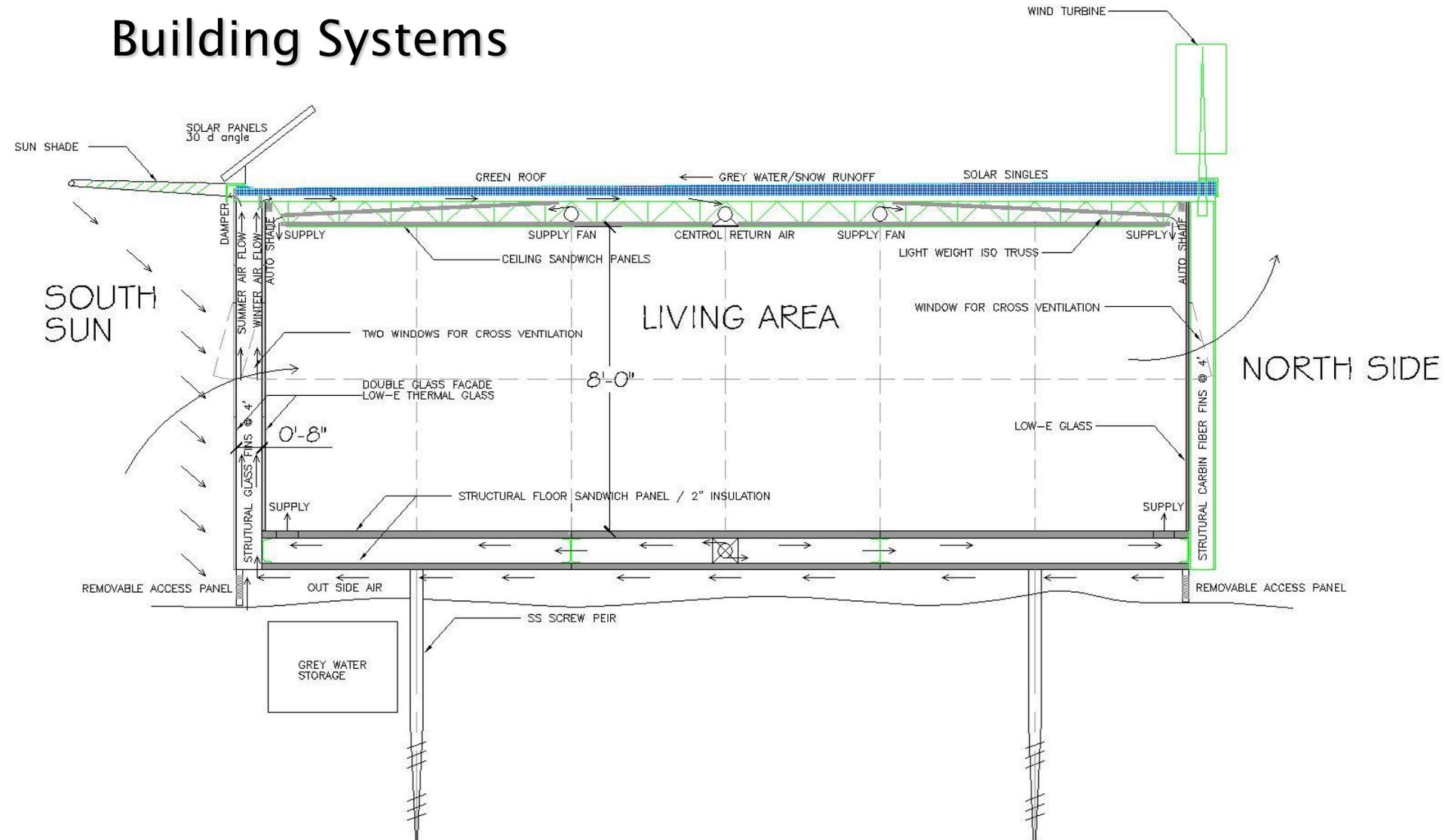
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Building Systems



Building section

concept

module

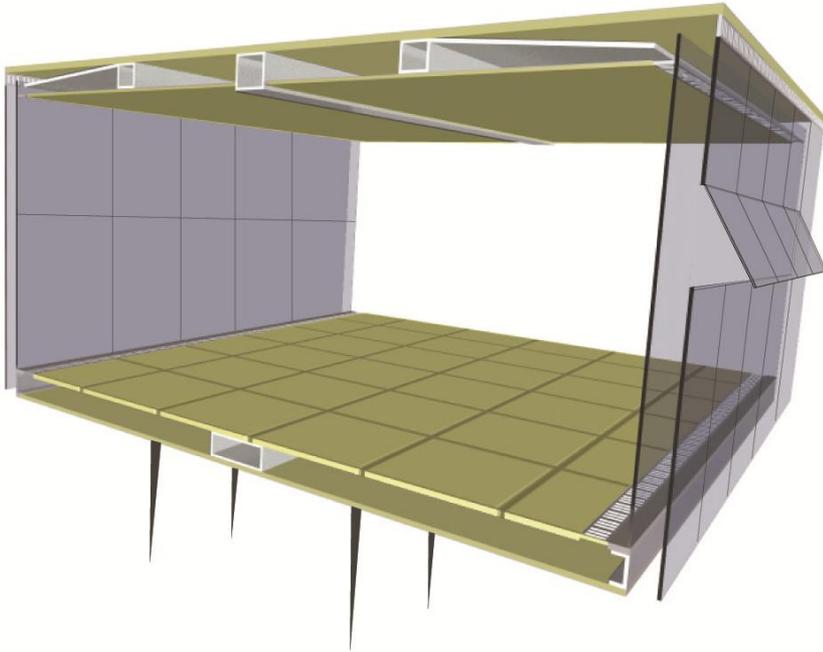
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Building Structure

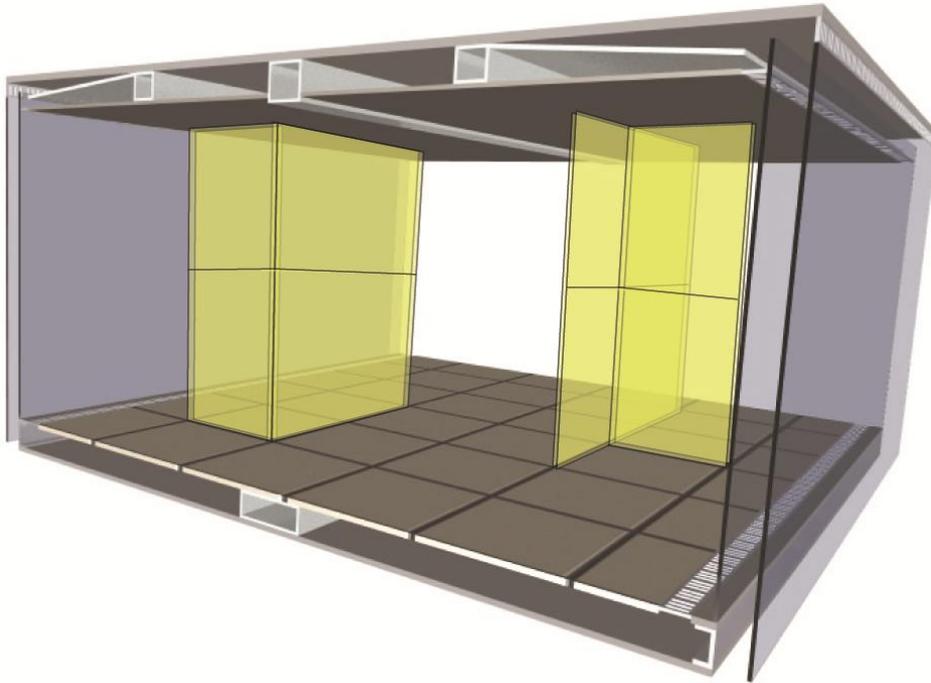


Screw Pile Piers Foundation System



Sandwich Panel Floor Deck System

Snap-Lock Wall System

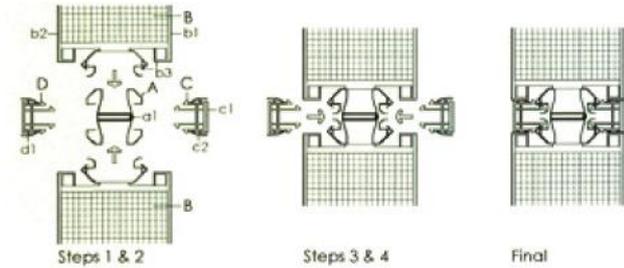


Benefits

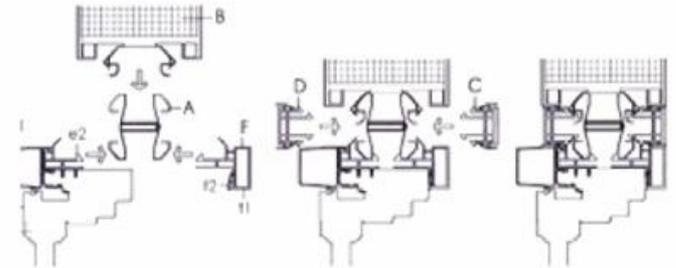
- Flexibility
- Removable Connection
- Reuse

Panel Connection

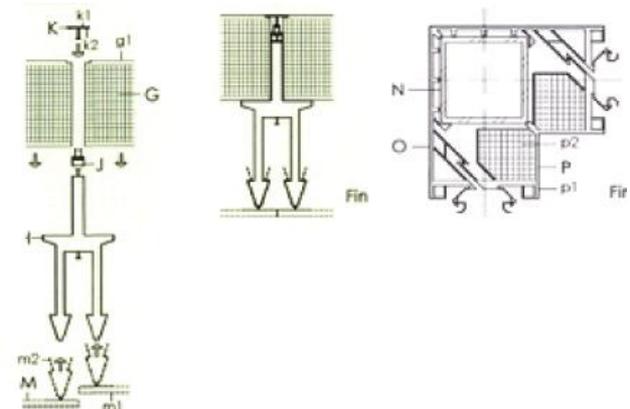
Wall to Wall



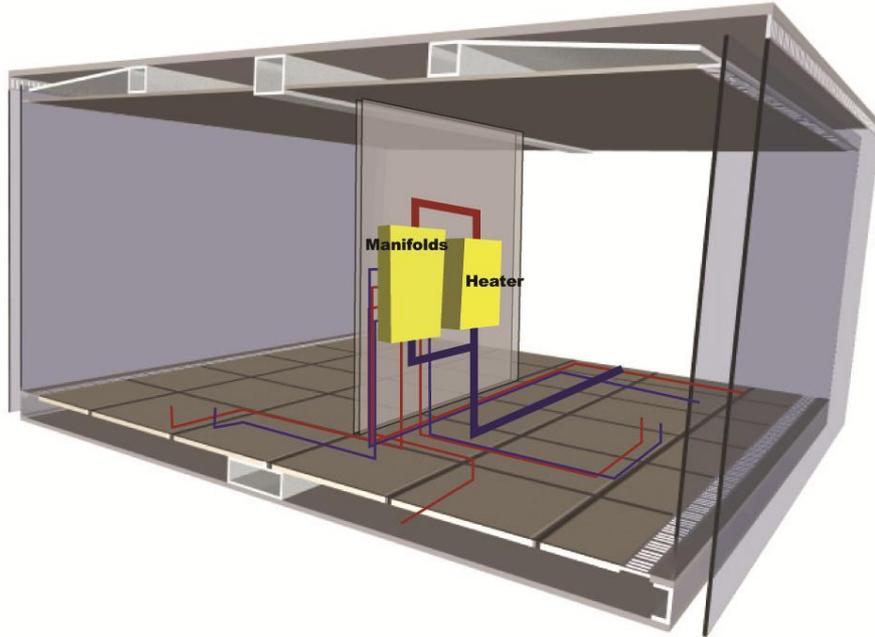
Window to Wall



Joint



Resource Efficient Plumbing



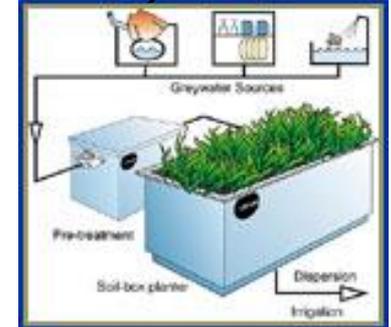
Tankless water Heater

Plumbing Manifold

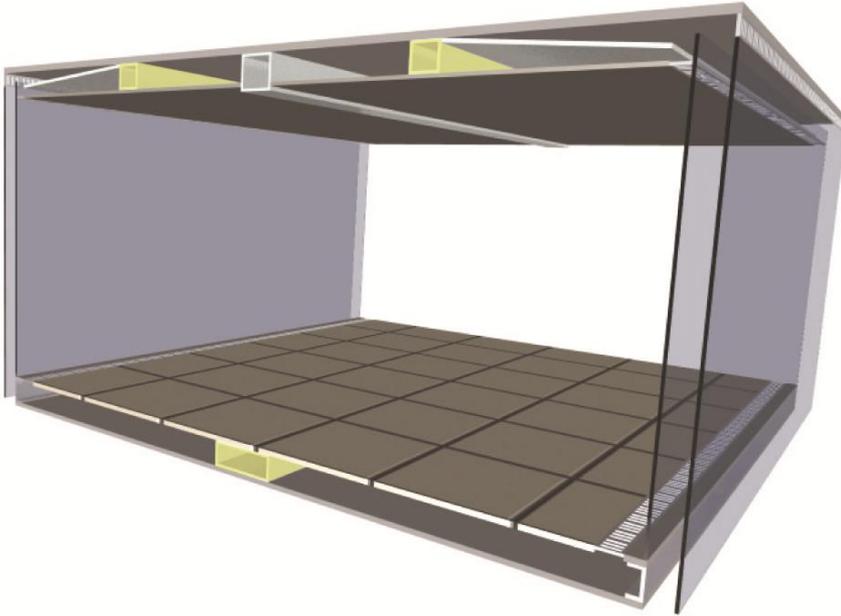
Low flow Fixture

Air Admittance Valve

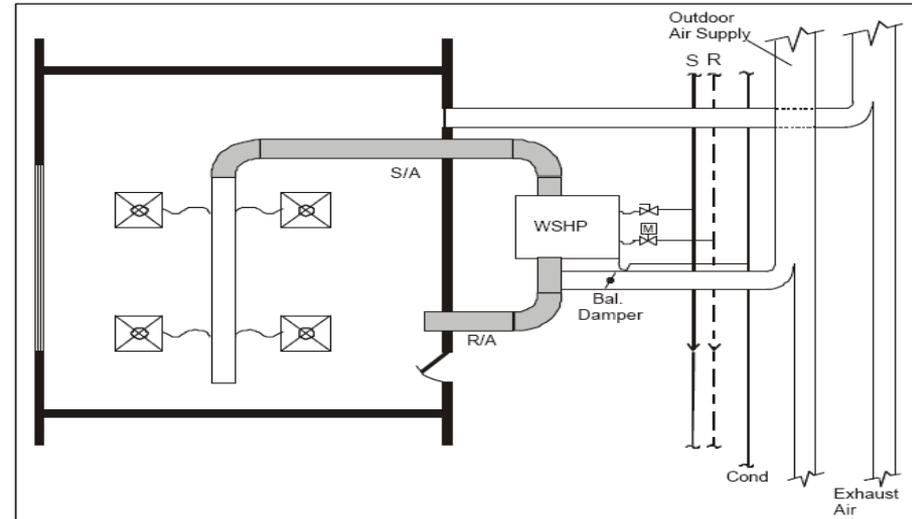
Gray-Water System



Mechanical Systems



Decentralized HVAC System



Ceiling Concealed Fan Coil



concept

module

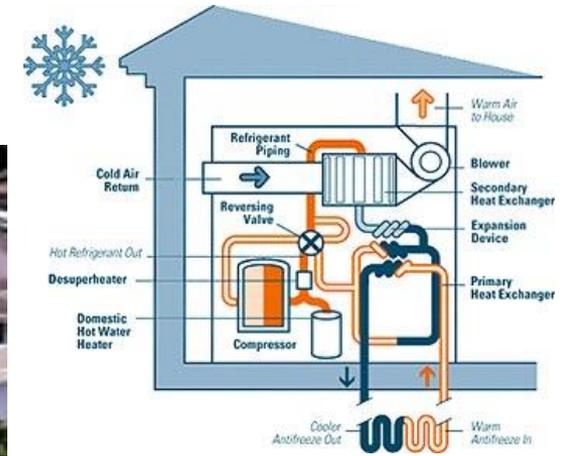
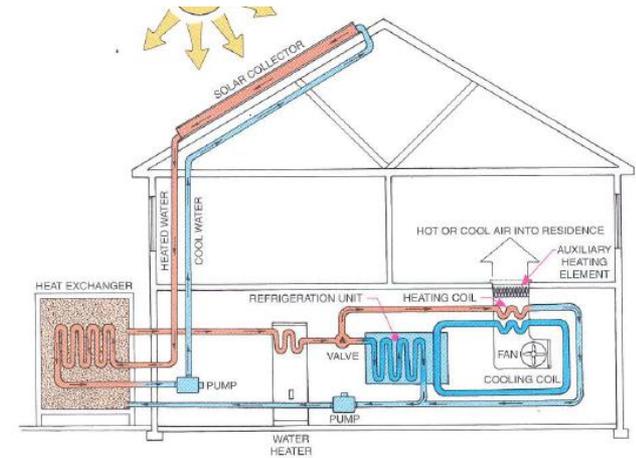
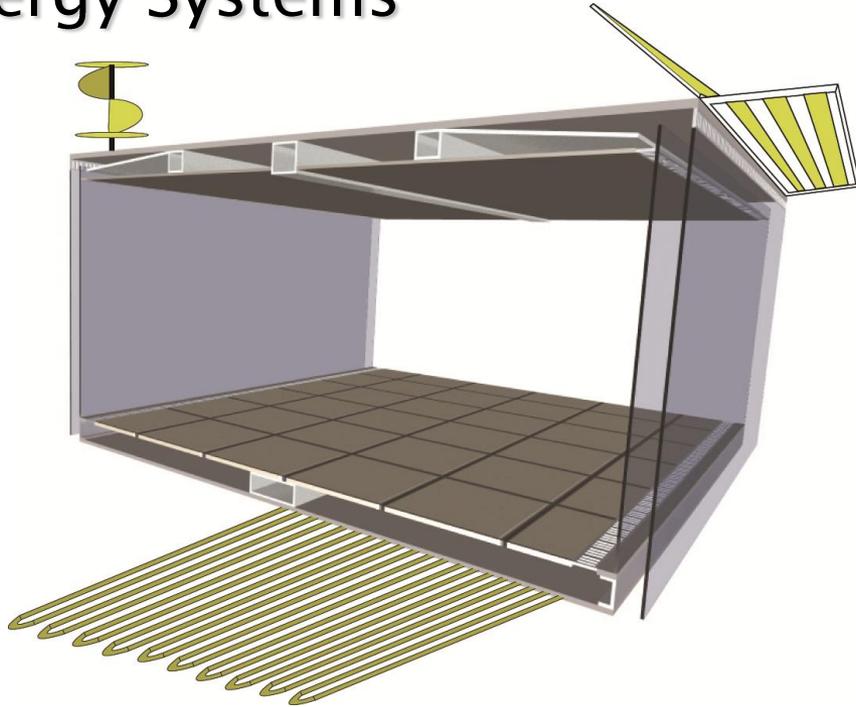
space

house

systems

safety

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 of “House of the Future”
 - Future Technologies
 - Cultural and Climatic Changes
 - Sustainability and Environmental Concerns
 - Production and Construction Costs

I PRO 301

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

Thank You