

**Housing Research Center
Purdue University**

2006 Annual Report

A. ORGANIZATION

The Purdue Housing Research Center is located in the Building Construction Management Program in the School of Technology. The Center activities are directed by Prof. Stephen Schuette as the Executive Director. This center works in conjunction with the Division of Construction Engineering & Management, School of Civil Engineering with Professor Makarand (Mark) Hastak serving as the Research Director for Manufactured Housing. Professor Joseph Orczyk and Mr. Mark Schaufette, both from the Department of Building Construction Management, serve as Co-Research Directors for Re-Construction.

B. 2006 ACTIVITIES

1. Manufactured Housing Production Process Analysis and Facility Layout (2002-2006), Funded by NSF-PATH Principal Investigators: Dr. M. Hastak (Purdue) and Dr. M. Syal (MSU)
2. National Housing Endowment Scholar-in-Residence Program: Decision Model to Evaluate Decentralized and Centralized Wastewater Treatment Options for Residential Land Development. (Summer 2006). PI: Dr. M. Hastak, Scholar-in-Residence at NAHB Research Center, Upper Marlboro, Maryland.

C. Reports and Publications

1. Jae Jeong, Makarand Hastak, and Matt Syal. (2006). "Supply Chain Analysis and Modeling for the Manufactured Housing Industry." *ASCE Journal of Urban Planning and Development*. Vol. 132, No. 1, March 2006, pp. 1-9
2. Banerjee, D., M. Syal, M. Hastak. (2006). "Material Flow Based Facility Layout Analysis of Manufactured Housing Production Plant." Paper scheduled for publication in the December issue of the *ASCE Journal of Architectural Engineering*.
3. Jae Jeong, Makarand Hastak, and Matt Syal. (2006). "Supply Chain Simulation Modeling for the Manufactured Housing Industry." Paper scheduled for publication in the December issue of the *ASCE Journal of Urban Planning and Development*. Vol. 132, Issue 4.
4. Matt Syal, Makarand Hastak, Michael Mullens, and Anne Sweaney. (2006). "U.S. - India Collaborative Research Directions in Urban Housing and Supporting Infrastructure." *ASCE Journal of Architectural Engineering*. Vol. 12, No. 4, December 2006, pp. 163-167

5. AbuHammad, A., Salem, S., Hastak, M., and Syal, M. (2006). "A Decision Support System for Manufactured Housing Facility Layout." Paper submitted to the *ASCE Journal of Architectural Engineering*.
6. Hastak, M. and Alex Duran (2006). "Decision Model to Evaluate Decentralized and Centralized Wastewater Treatment Options for Residential Land Development." A report to the NAHB-Research Center for the National Housing Endowment Scholar-In-Residence Program. Report number AT629.160_081506, Upper Marlboro, Maryland.

D. Planned or Anticipated Journal Publications

1. Garcia, Juan Pablo, Jae G Jeong, Makarand Hastak, and Matt G. Syal. (2006). "Alternative Housing Systems: Hybrid Home Concept" Planned submission to the *ASCE Journal of Architectural Engineering*.
2. AbuHammad, A., Salem, S., Hastak, M., and Syal, M. (2006). "Analysis of a Manufactured Housing Production System Using Simulation" Planned submission to the *ASCE Journal of Construction Engineering and Management*.
3. Jeong, Jae G, Hastak, Makarand and Syal, Matt G. (2006). "Manufacturer-Retailer Relationship Modeling and Optimization for the Manufactured Housing Industry" Planned submission to the *ASCE Journal of Construction Engineering and Management*.
4. Jeong, Jae G, Hastak, Makarand and Syal, Matt G. (2006). "Manufactured Housing Supplier Relationship Management Modeling and Optimization" Planned submission to the *ASCE Journal of Construction Engineering and Management*.
5. Jeong, Jae G, Hastak, Makarand and Syal, Matt G. (2006). "Internal Supply Chain Modeling and Optimization for the Manufactured Housing Manufacturer" Planned submission to the *ASCE Journal of Construction Engineering and Management*.
6. Jeong, Jae G, Hastak, Makarand and Syal, Matt G. (2006). "Integrated DSS for Manufactured Housing Supply Chain Management" Planned submission to the *ASCE Journal of Construction Engineering and Management*.

E. Center of Re-Construction

- A Center of Re-Construction is in the process of being established.
- On a broad basis the Center will work in the areas building rehabilitation as the result of disaster or natural deterioration.

F. NAHB Student Chapter

- 37 members
- Meetings are held each month with speakers, participation in the local chapter of NAHB, and fund raising activities to off set costs to travel to the national convention.
- Professor Dale Koehler is the faculty advisor.