

HOUSING EDUCATION AND RESEARCH CENTER (HERC)
Construction Management Program
School of Planning, Design and Construction
Michigan State University
230 Farrall Hall
E. Lansing, MI 48824
<http://www.spdc.msu.edu/cm/herc/>

Mr. Paul Streng, Executive Director
Dr. Matt Syal, Research Director

Annual Report - 2005

ORGANIZATION

The Housing Education and Research Center (HERC) is a part of the Construction Management program in the School of Planning, Design and Construction. It was established in 1995 and became a member of the National Consortium of Housing Research Centers in January 1996.

The School of Planning, Design and Construction was established at Michigan State University on July 1, 2004. It consists of programs in Construction Management, Interior Design, Landscape Architecture, and Urban & Regional Planning. The school began offering a new Ph.D. degree program in Construction Management from July 2005. Both, the newly formed school and the Ph.D. program have "Housing" as one of the key focus areas.

I. Funded Projects

1. Manufactured Housing

- Manufactured Housing Production Process Analysis and Facility Layout, 2002-06
NSF-PATH
Project Investigators: M. Syal and M. Hastak (Purdue University)

2. Energy and Sustainability

- Application of Leadership in Energy and Environmental Design (LEED) Site Planning Standards to Northern Climates, 2005-06
Land Policy Initiative, Michigan State University
Project Investigators: T. Mrozowski and J. Westphal
- Energy Efficiency in University Housing, Continuation Grant 2004-05
Rebuild Michigan Program, Energy Office, State of Michigan
Project Investigator: T. Mrozowski

- Michigan Residential Energy Codes Training Project, 2004-05,
State of Michigan Energy Office/US DOE
Project Investigators: T. Mrozowski, D. Cron, P. Streng

3. Urban Housing

- Technical Assistance to Detroit Housing Commission, 2004-05
Detroit Housing Commission, Detroit, MI
Project Investigators: A. Seidel and M. Syal

4. International Housing

- U.S.-India Symposium on Urban Housing and Supporting Infrastructure, New Delhi, India, 2005-06
NSF – International Division and Government of India
Project Investigators: M. Syal, M. Hastak (Purdue), M. Mullens (UCF) and A. Sweaney (Georgia)
- Executive Training Program for professionals from Korean National Housing Corporation (KNHC) and Korean Land Corporation (KLC), 2005
M. Syal, T. Mrozowski and A. Seidel

5. Land Development and Underground Infrastructure

- An Asset Management Approach for Drainage Infrastructure & Culverts, 2005-06
Midwest Regional University Transportation Center, MRUTC (through USDOT)
Project Investigator: M. Najafi
- Study of Equipment and Facilities for Rapid Installation of Buried Innerduct Network for Utility Lines, 2005-06
Outside Plant Consulting Services (through USDOT)
Project Investigator: M. Najafi
- Survey of Available Methods & Materials, and Updating of Construction Specifications for Trenchless Construction Methods, 2004-05
Michigan Department of Transportation
Project Investigator: M. Najafi
- Refinement and Synthesis of Sewer Infrastructure Cost Analysis for the City of Grand Rapids, 2004-05
Michigan State University Land Use Program
Principal Investigator: M. Najafi
- Revitalization of Michigan Cities by Proactive Requirements for Buried Infrastructure Inventory, Condition Assessment, Rehabilitation, Special Use, and Decision Making, 2004-05
Michigan State University Land Use Program
Principal Investigator: M. Najafi
- Impact of Density on Infrastructure, 2004-05
Michigan State University Land Use Program
Principal Investigator: M. Najafi

6. Outreach Projects

- Training programs related to MI Residential Energy Code, 2005 - T. Mrozowski
 - Developed and delivered a modular curriculum addressing both the prescriptive and systems compliance approaches of the code. 23 training sessions were presented at 18 different locations in the State of Michigan to over 1500 attendees including 750 building officials, plan reviewers, and inspectors and 750 industry participants including homebuilders, subcontractors, installers, architects, suppliers and manufacturers.
- Training programs related to infrastructure, 2005 - M. Najafi
 - 3 Trenchless Technology Workshops, Lansing & Novi, MI, and Bozeman, MT.
 - 2 Cost and Design of Infrastructure seminars, MSU Extension, Macomb and Livingston Counties
 - 2 Horizontal Directional Drilling (HDD) Schools, Novi, MI and Houston, TX.
 - Inspector Training and Engineering School, Underground Construction Technology (UCT), Houston, Texas, January 2005

II. Theses and Project Reports

- Swarup, L., and Syal, M. (2005). "Whole House Criteria and its Effectiveness with Hybrid Homes," M.S. Construction Management Thesis, Michigan State University, MI
- Mohammed, T. and Abdelhamid, T. (2005). "Assessment of Production Planning Process in Residential Construction Using Lean Construction and Six Sigma," M.S. Construction Management Thesis, Michigan State University, MI
- Luo, Y. and Najafi, M. (2005). "Productivity Analysis of Microtunneling Pipe Installation Using Simulation," M.S. Construction Management Thesis, Michigan State University, MI
- Kim, K. and Najafi, M. (2005). "Cost Analysis for Renewal of Sewer System In The City of Grand Rapids," Michigan M.S. Construction Management Thesis, Michigan State University, MI
- Das, S., and Mrozowski, T. (2005). "Development of a Database Methodology for Compliance With Regionally Available Materials Standards of LEED Green Building Rate System," M.S. Construction Management Thesis, Michigan State University, MI
- Carson, C., and Syal, M. (2005). "Residential Redevelopment Decision Support System Framework for the City of Detroit, MI., M.S. Construction Management Project Report, Michigan State University, MI
- M. Chaganti, and Syal, M. (2005). "Project Management Factors related to International Construction Joint Ventures between US and Indian Companies," M.S. Construction Management Project Report, Michigan State University, MI
- J. Gandhi, and Syal, M. (2005). "Preliminary Assessment of Project Management Practices of Public Housing Authorities," M.S. Construction Management Project Report, Michigan State University, MI

- Gudla, K. and Najafi, M. (2005). "TTDSS: Development Of A Prototype Web-Based Decision Making Model For Selection Of Trenchless Construction Methods," M.S. Construction Management Project Report, Michigan State University, MI
- Najafi, M. (Task Committee Vice Chair). (2005). "Pipeline Design for Installation by Horizontal Directional Drilling," ASCE Manuals and Reports on Engineering Practice, American Society of Civil Engineers, Reston, Virginia.

III. Student Activities

1. Student Builders and Contractors Association (SBCA)

SBCA is affiliated with NAHB and AGC with membership open to students from CM and affiliated majors. One of the primary goals of this association is to promote activities for the membership that compliment, enhance and expand upon our academic program along with employing high ethical standards, professionalism and sound business methods. SBCA is involved in a number of projects in association with Greater Lansing Association of Home Builders and the Michigan Association of Home Builders. For many years its membership has exceeded 100, placing it among the top 5 nationally recognized active student builder organizations. Some of the annual projects SBCA undertakes each year are the Construction Management Career Fair (with over 40 employers attending), Habitat for Humanity, Safety Day, and sponsoring a team in the NAHB residential competition, etc. The MSU students secured 1st place in 2004 NAHB competition. In addition, four NAHB/ Greater Lansing HBA scholarships, totaling \$7,000, were awarded to MSU CM students in 2004. Mr. Douglas Cron, undergraduate program coordinator, serves as the faculty advisor and competition team coach.

2. North American Society for Trenchless Technology (NASTT) - Student Chapter

NASTT student chapter at Michigan State University was established in 2002. The goal of this student chapter is to educate and train graduate and undergraduate students in the field of Underground Construction and Trenchless Technology. The chapter has been engaged in a variety of activities, and will continue to provide opportunities for involvement in the future. To date, the chapter has sponsored several student field trips and tours of project sites, and has attended three national and international conferences and conducted several industry guest speaker meetings at MSU. These activities have provided members with exposure to a range of experiences, enriching their interests in the field of Underground Construction. Dr. Mohammad Najafi serves as the faculty advisor.