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High Performance Buildings

...building that integrates and optimizes on a lifecycle basis all major high performance attributes, including

- energy conservation,
- environment,
- safety,
- security,
- durability,
- accessibility,
- cost benefit,
- productivity,
- sustainability,
- functionality, and
- operational considerations.

(Title IV, Sec. 401)
Safety Goals: protection against

- Strong Winds
- Earthquakes
- Fire (internal and external)
- Insects
- Mold
- Indoor air quality
HP buildings as the necessary direction for building industry for the future to meet the 2020 CO2 goals
Technologies

• Improved building envelope (strong, high effective insulation)
• Improved Heating, Cooling, Ventilation
• Reduced duct leaks
• Improved lighting design (daylighting, controls, lamps)
• New technology for paints & roofing materials
• Quality Control/Quality Assurance
FEMA’s Mississippi experience demonstrates:

– The Manufactured Housing industry is fully able to produce high performance housing with high levels of quality assurance – if asked to do so in an effective procurement specification

– Affordable, high performance emergency housing units can meet the temporary AND permanent housing needs of the displaced state residents.
A transparent design process and quality-driven engineering performance worked in Mississippi and should be used as a model for future procurements.
Emergency Housing should...

- Be specified to meet stringent high performance goals
- Use quality assurance provisions from the beginning of the process.
- Be a long-term solution (non-disposable). Dual HUD-code and IRC certification is possible
It’s much easier to ensure high performance and quality control in a manufacturing environment than in the field.
RESULTS:

• Energy Star homes + Energy Star HVAC will save consumers to over $25,000,000 per year (at 2004 production rates)

• Other benefits include: increased energy independence, reduce national residential energy consumption, reduce power plant greenhouse gas emissions and climate change impacts. Lower federally subsidized low income utility bill voucher & weatherization taxpayer expenses.

(M. Lubliner, MHCC Presentation, May 23, 2007)
Growing Consensus on High Performance Goals

• Greensburg, KS: “Greensburg City Council has approved a resolution that all city building projects will be built to high energy efficiency standards.

• Pacific Northwest NEEM Program: Over 120,000 HUD-code homes built since 1988. Utilities invest $100,000,000 in Demand Side Management. Provided a “better deal” than new coal power plant. SEO quarterly inspections + HUD process

• MS AHPP Park and Cottage Models
Next Steps

• Work with code organizations to develop a high performance standard as an option in national codes.

• Require that all federal building procurements use high performance standards and quality assurance.

• Design incentives and other programs to encourage high performance construction in all construction.