

Center Research Update

Roofing Industry Alliance for Progress
April 25, 2009
Four Seasons Las Colinas

Dr. Jim Hoff
Research Director

Building Opportunities

New Organization. Innovative Solutions. Fresh Vision.



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Performance Roofing

Research Focus

1. Key opportunities for broad industry advancement
2. Critical issues that limit or hinder industry progress
3. Standards critical to the success of sustainable roofing
4. Prioritized industry research agenda

Research Update

Key Opportunities

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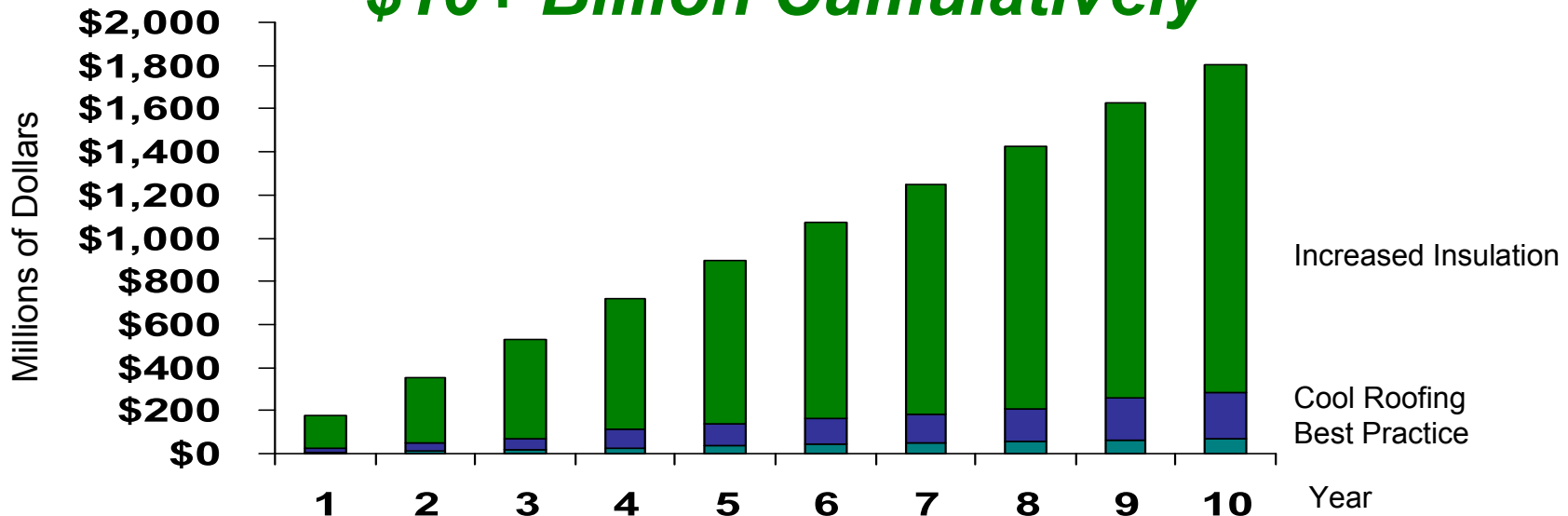
Key Opportunity:

Economic Research



Roofs & Energy Savings

\$1.8 Billion Annually
\$10+ Billion Cumulatively



**Annual Energy Savings for
4 Billion Square Feet of Low-Slope Commercial Roofing Installations
(2008 Dollars)**

¹Based on 4 billion square feet roof installations, assuming \$0.12/KWH cooling energy cost, \$1.00/therm heating energy cost, 2.0 cooling COP, and 75% heating efficiency, 20% of roofs replace existing cool roofs, 5% of roofs installed over unheated spaces, and 20% of roofs installed over non-cooled spaces. Calculations derived using the NRCA EnergyWise Calculator and DOE Cool Roof Calculator.

²Actual R values vary +/- R5, depending on ASHRAE climatic zone.

³A cool roof is defined as a roof offering 50% long-term solar reflectivity or the thermal equivalent for the service life of the roof.

⁴Best practice defined as 2 or more staggered insulation board layers to minimize thermal loss at board joints.



Roofs & Energy Production

The Rooftops of the United States:

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Segment:	Surface Area¹
Commercial (Flat)	50 Billion Square Feet
Residential (Steep)	150 Billion Square Feet
Total	200 Billion Square Feet
Energy Potential²	50,000 Megawatts (10 Grand Coulee Dams)

¹Derived from Census data

²Assumes 1watt average solar power production during daylight hours per square foot of suitable roof surface (225 billion square feet total roof surface X 25% suitable usage factor X 1 watt / square foot)

Research Update

Key Issues

Key Issue:

*Photovoltaic Roof
System Integration &
Compatibility*

PV Roof System Integration

Center Actions

- Developed and published guideline
 - “Successful Rooftop Photovoltaics: How to Achieve a High-Quality, Well-Maintained, Compatible Rooftop PV System,”
 - Available free at Center Website (www.roofingcenter.org)
- Developed a field research proposal to support the guideline

Field Research Proposal

- Uses database from State of Florida of over 6000 installations to investigate current state of rooftop solar
- Combines “sweat equity” of Center members with support from the Alliance and (hopefully) government grants
- Ultimate goal is to transform the current Center guideline into a recognized standard

Field Research Timeline

- Uses rooftop solar database from State of Florida (over 6000 installations)
- Combines “sweat equity” of Center members with professional research services
- Ultimate goal is to transform the current guideline into a recognized standard

Research Update

Industry Research Agenda

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Roofing Industry Research Summit



Roofing Industry Research Summit

- May 2nd & 3rd, Washington, DC
- Keynote by Marc LaFrance of DOE
- Over thirty organizations participating:

NRCA	RCMA	RCMA	CIB / RILEM
CRCA	SEIA	SEIA	RICOWI
RCI	GRHC	GRHC	UL
RCIF	ORNL	ORNL	FM
ERA	NRC	RCC	CMRC
PIMA	CRRC	CRRC	MRA
ARMA	SPFI	SPFA	CSSB

Research Update

Industry Standards

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Standard for Sustainable Roofing Systems



Why a Sustainable Roofing Standard?

- Current whole building standards may not adequately represent the importance of roofs in achieving sustainable goals
- Current whole building standards tend to neglect the importance of durability in achieving truly sustainable roofs
- Emerging standards from the vegetated “green” building community may cause confusion

Why a Sustainable Roofing Standard?

Few Major Building Systems
Offer As Many Energy &
Environmental Benefits...

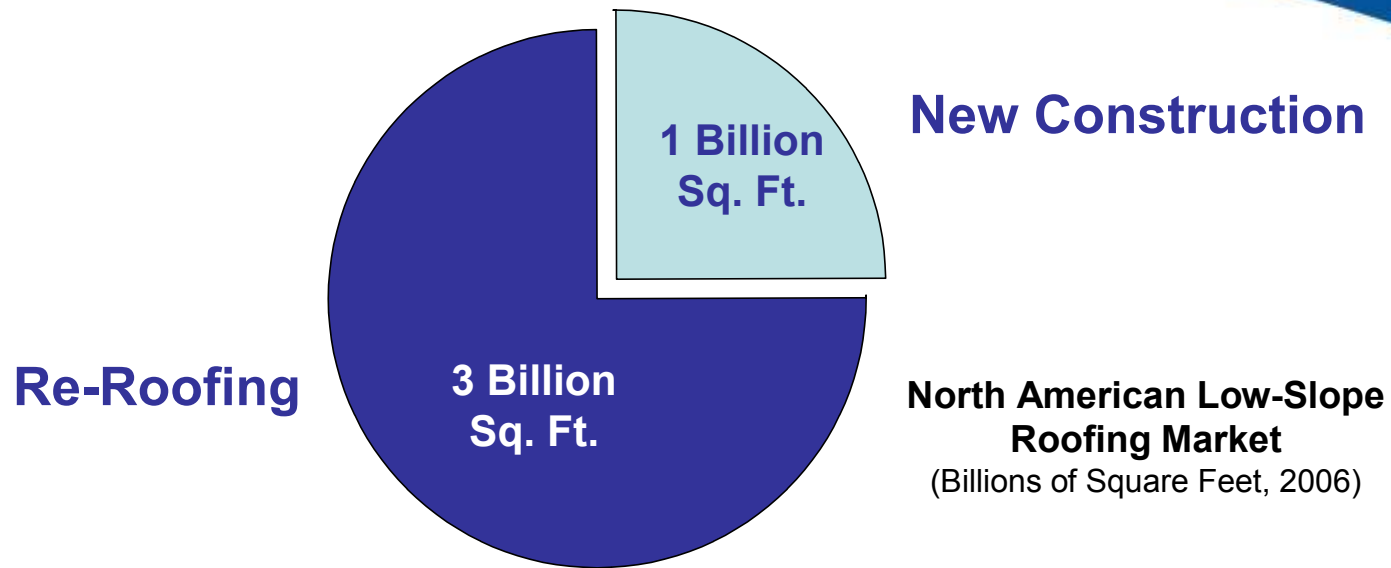
... And Few Major Building
Systems Are Installed as
Frequently as Roofs!

Energy / Environmental Benefits

- ✓ Increased Energy Efficiency
- ✓ Clean Energy Production
- ✓ Cleaner Air & Water
- ✓ Reduced Material Waste
- ✓ Extended Building Life Cycle

Why a Sustainable Roofing Standard?

The Roofing Multiplier Effect



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Each year, 4 billion square feet of commercial roofs are installed in North America, exceeding new commercial construction by a factor of 4!

Why a Sustainable Roofing Standard?

- ✓ Our industry gains influence over rooftop decisions
- ✓ Our businesses gain recognition as “green” roofing experts
- ✓ Our customers gain assurance that they are “going green” in a professional manner

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