CENTER FOR ENVIRONMENTAL INNOVATION IN ROOFING

FEBRUARY 24, 2012

IRE
ORLANDO

MOVING **GREEN** INTO THE **BLACK**

PROVEN STRATEGIES FOR THE GREEN BUILDING MARKET

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THE BLACK

A FEW WORDS ABOUT STRATEGY

WHAT IS STRATEGY?

"Strategy involves **changing the conditions of competition to make them more favorable for your company than for your competitors**"

Kelt Kindick, Bain & Company

WHY IS STRATEGY IMPORTANT?

"Without a strategy, your company's profits are **controlled by your competitors**"

Kenichi Ohmae, *The Mind of the Strategist*

ACHIEVING STRATEGIC SUCCESS

"Merely allocating resources in the same way as your competitors will yield no competitive advantage.

If you can identify the areas which really hold the key to success in your industry and apply the right mix of resources to them, you can put yourself in a position of real competitive superiority."

Kenichi Ohmae, *The Mind of the Strategist*

THREE STEPS TO STRATEGIC SUCCESS

- Identify Key Success Areas
- Apply the Right Mix of Resources
- Put Yourself in Position of Superiority

ROADMAP FOR STRATEGIC SUCCESS

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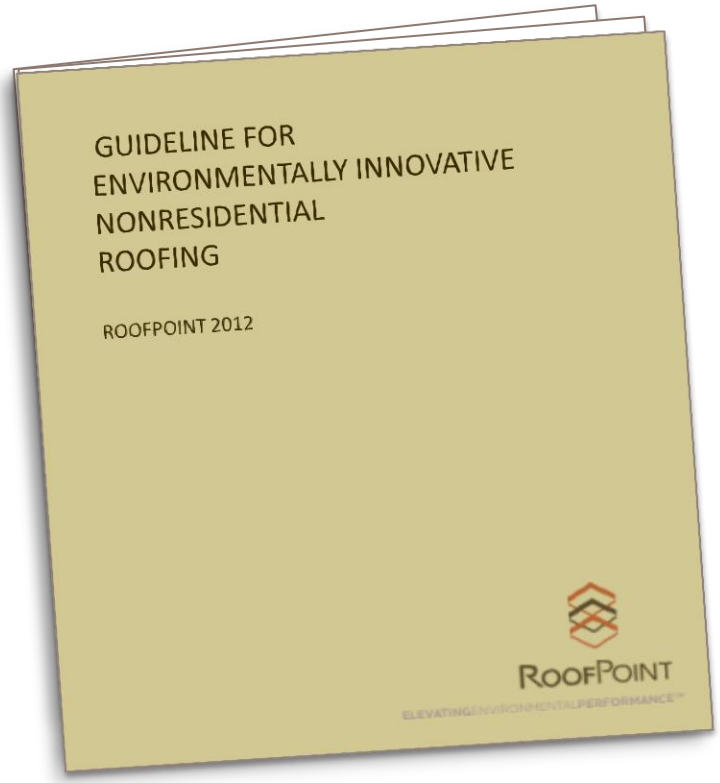

THE ROOFPOINT ROADMAP

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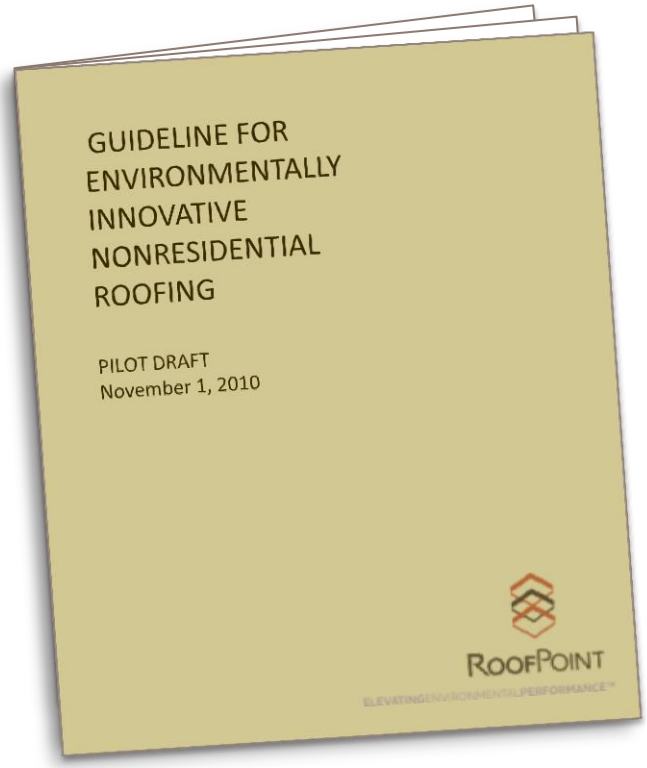
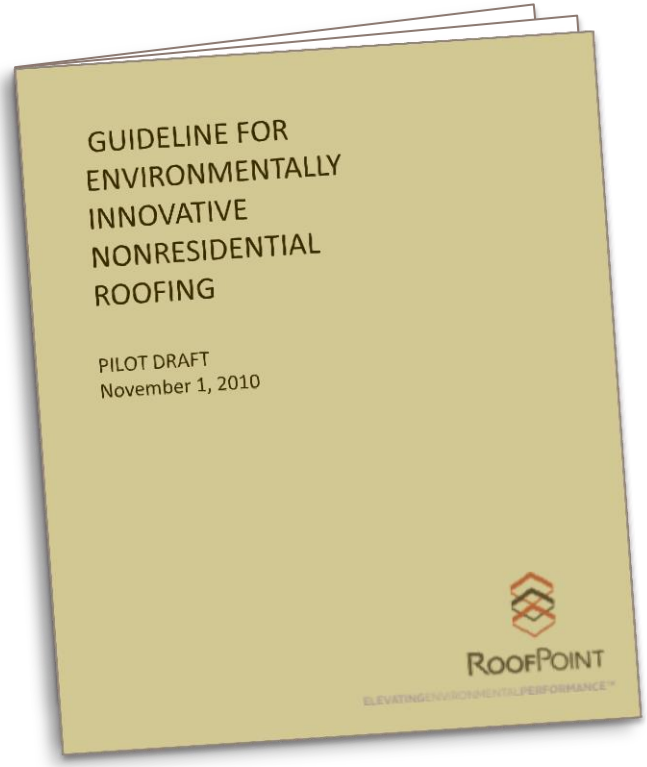


SECTIONS
(KEY SUCCESS AREAS)

CREDITS
(RIGHT MIX OF RESOURCES)

REQUIREMENTS
(POSITION OF SUPERIORITY)

KEY SUCCESS AREAS



ENERGY

Section 1: Energy Management

RESOURCES

Section 2: Materials Management

Section 3: Water Management

LIFE CYCLE

Section 4: Durability

Section 5: Life Cycle Management

KEY SUCCESS AREAS

ENERGY

WHY ENERGY?

- Wide variety of options to choose
- High ROI, especially for re-roofing
- Incentives available in many markets
- Most accepted way to “go green”

KEY ENERGY STRATEGIES

- Become the local energy expert
- Integrate energy tools into sales and estimating
- Partner with local energy advocates and providers

BE THE ENERGY EXPERT

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- Understand all the options
  - Saving and producing energy
  - Advantages and disadvantages
  - Drill down to every feature
- Validate your knowledge through training and certification

ENERGY OPTIONS

ENERGY MANAGEMENT

CREDIT	TITLE	PRIMARY INTENT	STRATEGY
E1	High R Roof Systems	Reduce Energy Use	Increase Roof R Value
E2	Best Thermal Practices	Reduce Energy Use	Reduce Thermal Discontinuities
E3	Roof Surface Thermal Contribution	Reduce Energy & Heat Island Effects	Install Climate-Appropriate Roof Surface
E4	Roof Air Barrier	Reduce Energy Use	Install Air Barrier
E5	Rooftop Energy Systems	Produce Clean Energy	Install Solar/Wind Energy
E6	Rooftop Daylighting	Produce Clean Energy	Install Daylighting

KEY ENERGY QUESTIONS

- What is the best R-value for your market?
- What is the best roof surface for your market?
- What are the best roofing practices to save energy?
- What are the best clean energy options for your market?

WHAT IS THE BEST R-VALUE?

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ROOFPOINT CREDIT E1

ROOFPOINT

Guideline for Environmentally Innovative Nonresidential Roofing

SECTION 1: ENERGY MANAGEMENT

E1 High R Roof System

Intent

Achieve levels of roof-related energy performance beyond the prerequisite standard to reduce environmental and economic impacts associated with excessive energy.

Requirement E1a: High R Value

The minimum thermal resistance (R-value) of the roofing system shall meet or exceed the following minimum requirements:

Roof Configuration	Climate Zone[4]			
	Zone 1	Zone 2-5	Zone 6	Zone 7-8
Roof with Insulation Entirely Above Deck				
Conditioned Space[1]	R-20[5]	R-25[5]	R-30[5]	R-35[5]
Semi-Heated Space[1]	R-20[5]	R-7.6[5]	R-15[5]	R-15[5]
Structural Metal Roof[2]				
Conditioned Space[1]	R-19+R-11[6]	R-19+R-11[6]	R-19+R-11[6]	R-19+R-11[6]
Semi-Heated Space[1]	R-19	R-13+R-19	R-13+R-19	R-13+R-19
Attic and Other[3]				
Conditioned Space[1]	R-38	R-49	R-49	R-60
Semi-Heated Space[1]	R-19	R-30	R-38	R-38

- Based on recognized green building energy standard (ASHRAE 189.1)
- R-values for eight different climate zones
- R-values for all roof conditions
  - Insulation above deck
  - Structural metal roofing
  - Insulation in attic space

WHAT IS THE BEST ROOF SURFACE?

ROOFPOINT CREDIT E3

E3 Roof Surface Thermal Contribution

Intent

- Optimize net annual building energy efficiency.
- Optimize building peak energy demand during the cooling season.
- Reduce heat island effects and associated impacts on microclimates and human and wildlife habitats.

Requirement E3a: Optimize Net Annual Energy Efficiency

Optimize net energy efficiency by installing one or a combination of the following roof surfaces:

Climate Zone[1]	Roof Surface
1 - 3	a. High Albedo[2]
	b. Ballasted[5]
	c. Vegetated[6]
4	a. High Albedo[2]
	b. Medium Albedo[3]
	c. Ballasted[5]
	d. Vegetated[6]
5 - 6	a. High Albedo[2]
	b. Medium Albedo[3]
	c. Low Albedo[4]
	d. Ballasted[5]
	e. Vegetated[6]

- Based on best available research
- Looks at three key factors
  - Net energy efficiency
  - Peak energy demand
  - Heat island effects
- Looks at five surface options
  - High / medium / low albedo
  - Ballasted
  - Vegetative
- Offers best options by climate zone

WHAT ARE THE BEST ENERGY PRACTICES?

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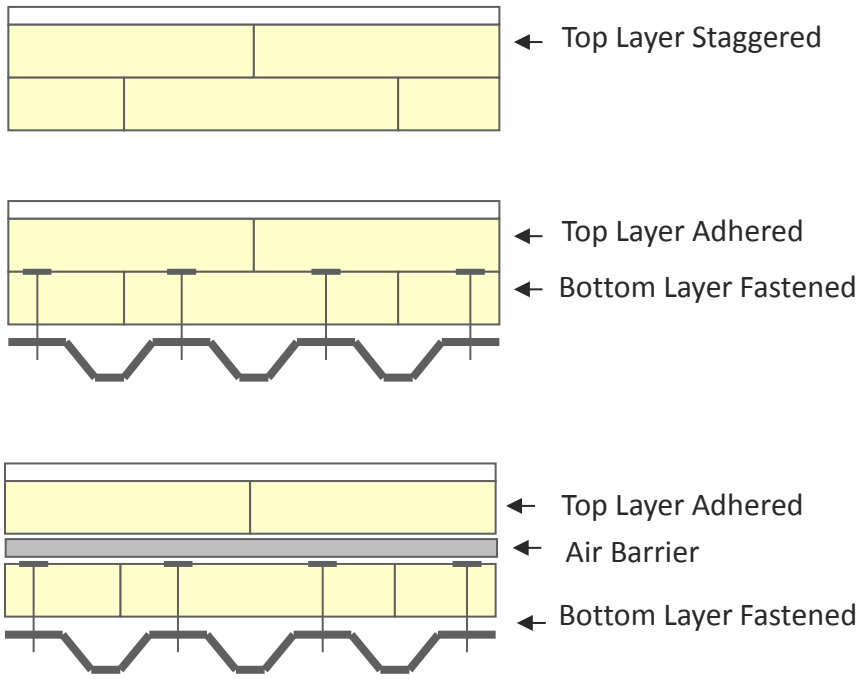
CREDITS E2 / E4



- Install roof insulation in multiple, staggered layers (E2)
- Use non-thermal bridging techniques to eliminate thermal "short circuits" (E2)
- Install air barrier to restrict air movement into the roofing system (E4)

WHAT ARE THE BEST CLEAN ENERGY OPTIONS?

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CREDITS E5 / E6

- Rooftop PV (E5)
  - Many incentives available
- Rooftop Solar Thermal (E5)
  - Fast payback
  - Provide for all hot water needs
- Rooftop Daylighting (E6)
  - Fast payback
  - Excellent retrofit opportunity

VALIDATE YOUR KNOWLEDGE

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RISE ROOF INTEGRATED SOLAR ENERGY

LIGHTING collaborative®

SpecRight PROGRAM

USE ENERGY TOOLS

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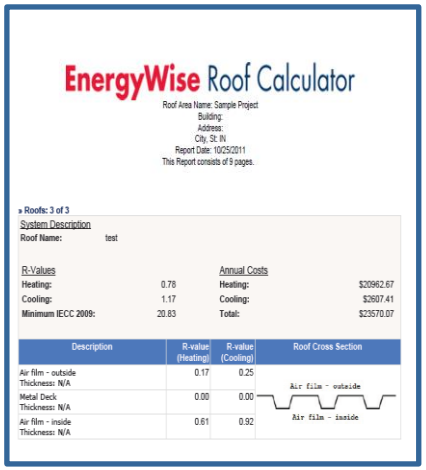
SkyCalc

Skylight Design Assistant

Free Download

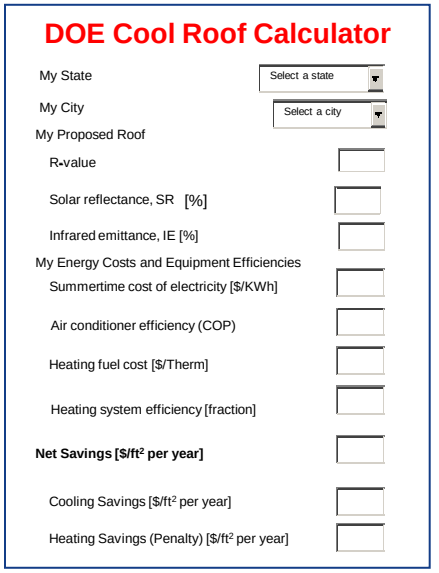
NRCA EnergyWise

Online Calculator



DOE Cool Roof Calculator

Online Calculator

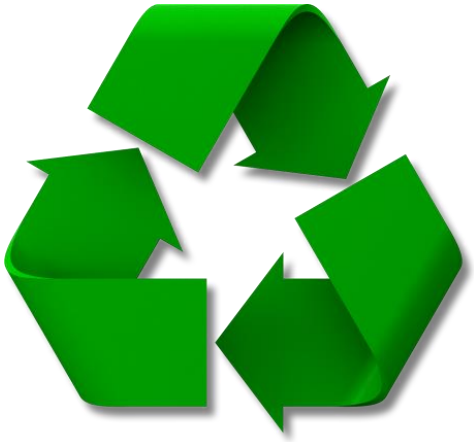


DEVELOP LOCAL PARTNERS

- Sustainable Business Organizations
- State and Local Energy Agencies
- Utilities

KEY SUCCESS AREAS

RESOURCES



WHY RESOURCES?

- Reduced waste / lower tipping fees
- Increasing importance of water and material management
- Opportunity for differentiation, especially in reroofing

KEY RESOURCE STRATEGIES

- Develop local and national resource partners
- Integrate recycling and waste management into sales and estimating

RESOURCE OPTIONS

MATERIALS / WATER MANAGEMENT

CREDIT	TITLE	PRIMARY INTENT	STRATEGY
M1	Recycled Content	Reduce Solid Waste	Increase Recycled Product Content
M2	Material Reuse	Reduce Solid Waste	Increase Material Reuse
M3	Waste Management	Reduce Solid Waste	Reduce Roofing Waste & Scrap
M4	Low-VOC Materials	Reduce Ground-Level Ozone	Reduce VOC Content
W1	Roof Storm Water Retention	Reduce Storm Water Runoff And Related Water Pollution	Install Vegetated or Water-retaining Roof System
W2	Roof-Related Water Use Reduction	Reduce Non-Potable Water Requirements	Capture Roof Water for Landscaping

DEVELOP RESOURCE PARTNERS

- Local
  - Local recycling programs and organizations
  - Local waste management companies
- National
  - National recycling providers
  - National material suppliers with recycling programs and/or high recycled content products

INTEGRATE INTO SALES & ESTIMATING

- Offer Low / Zero Landfill Options
  - Local recycling programs and organizations
  - Local waste management companies
- Add Resource Measures to Proposals
  - Recycled materials / total recycled content
  - Material reuse
  - VOC content

KEY SUCCESS AREAS

LIFE CYCLE

WHY LIFE CYCLE?

- Long roof service life is critical to building service life and occupant health / safety
- Service life and life cycle are key factors in recent green building guidelines and codes
- Life cycle management offers opportunity to add value for customers

KEY LIFE CYCLE STRATEGIES

- Become the life cycle expert
- Integrate life cycle management into sales and estimating

BECOME THE LIFE CYCLE EXPERT

- Understand all the options
  - Roofing product durability
  - Roof design durability
  - Quality management
  - Roof asset management
  - …and how all these options work together
- Market the Sustainable Roof Life Cycle Concept

LIFE CYCLE OPTIONS

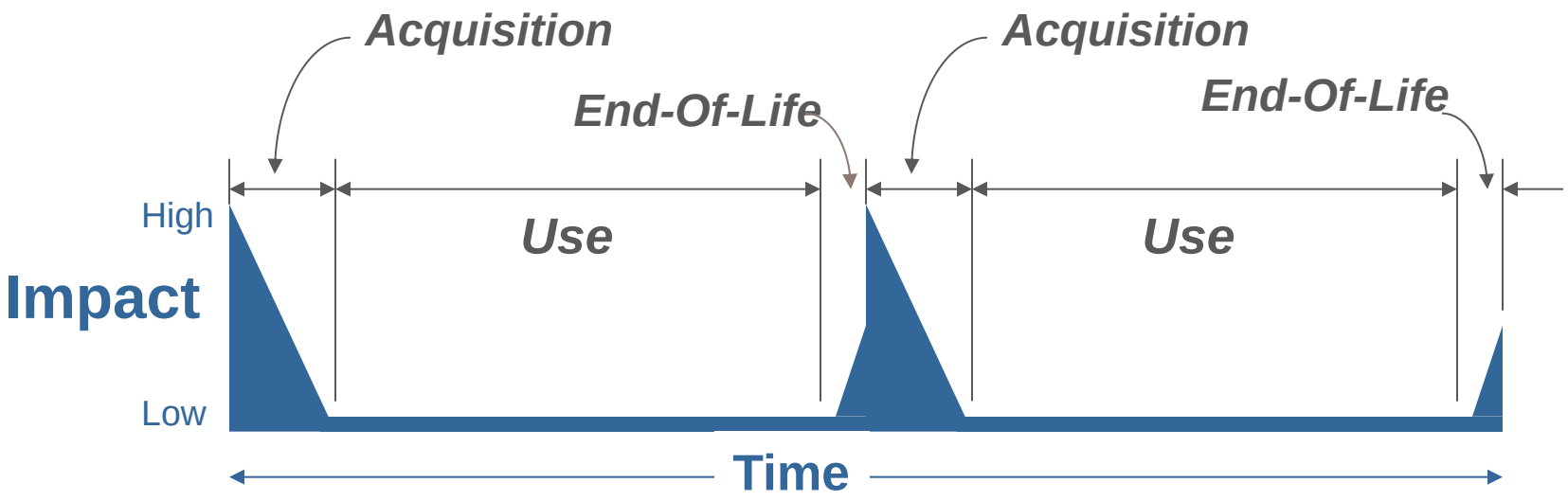
DURABILITY / LIFE CYCLE MANAGEMENT

CREDIT	TITLE	PRIMARY INTENT	STRATEGY
D1	Durable Roof Insulation	Reduce Insulation Damage	Install Durable Insulation System
D2	Roof Drainage Design	Reduce Water Entry	Assure Positive Roof Drainage
D3	Roof Traffic Protection	Reduce Surface Damage	Provide Traffic Protection
D4	Increased Wind Resistance	Reduce Storm Damage	Increase Wind Uplift Rating
D5	Hygrothermal Analysis	Reduce Moisture Damage	Project Moisture Analysis
D6	Construction Moisture Management	Reduce Moisture Damage	Project Moisture Management
D7	Durability Enhancements	Increase System Durability	Multiple Options
L1	Roof Maintenance Program	Increase Service Life	Ongoing Maintenance Program
L2	Project Installation Quality	Increase Service Life	Contractor Quality Program

THE ROOF LIFE CYCLE

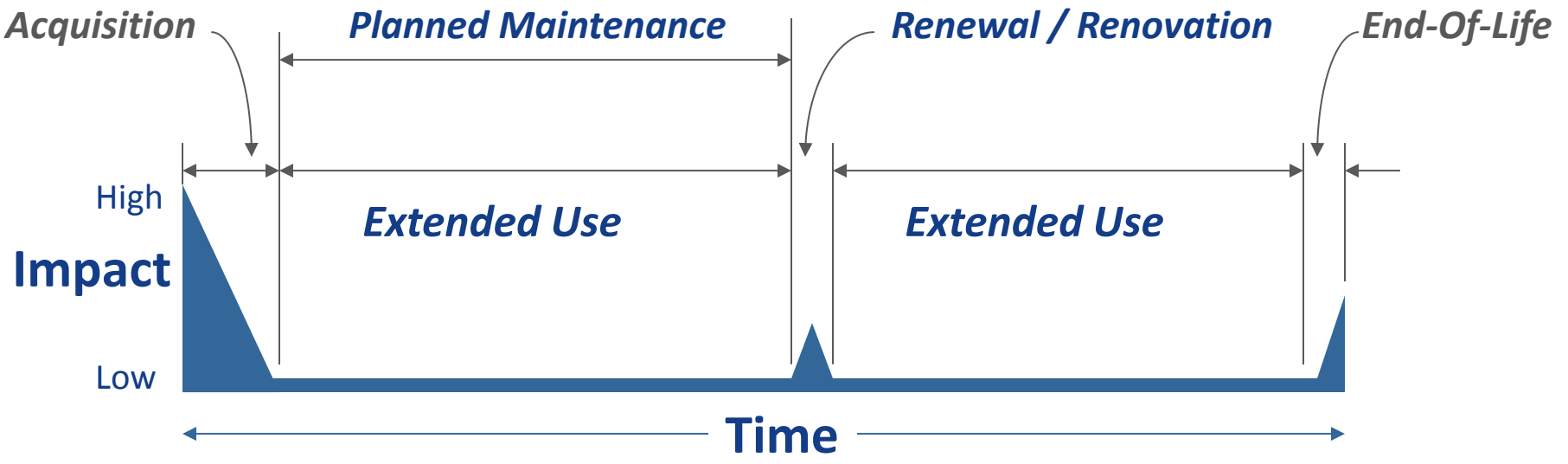
- The All-Too-Common Roof Life Cycle
- The Sustainable Roof Life Cycle

THE ALL-TOO-COMMON ROOF LIFE CYCLE



- Reduced service life
- Accelerated replacement cycle
- Increased financial & environmental impact

THE SUSTAINABLE ROOF LIFE CYCLE



- Extended service life
- Planned & orderly replacement cycle
- Reduced financial & environmental impact

LIFE CYCLE MANAGEMENT TIPS

- Make sure the building owner understands the many critical service functions the roof must perform
- Encourage long-term maintenance agreements
- Recommend planning (and budgeting) for at least one major renovation or renewal of the roof

OTHER OPPORTUNITIES

- Green Your Business
  - Measure and reduce total energy usage
  - Implement company-wide resource management and recycling programs
  - Let customers know you're serious about green
- Get Involved with RoofPoint
  - Incorporate RoofPoint into project quotes
  - Join the Center / support Center members

RoofPoint

THANK YOU!

CENTER FOR ENVIRONMENTAL INNOVATION IN ROOFING

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