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Win More Roof Work with Energy Modeling

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Tom is a 44-year veteran of the spray foam industry, is a graduate of Ryerson University's Chemical Engineering program, advanced studies in Business Management, Polymer Chemistry and Building Science. Tom has held various positions from Development Chemist, Technical Manager, Global Marketing Manager, Business Manager and Vice President of Building Science and Innovation in Canada and the United States with some of the biggest names in our industry including BASF, Honeywell, Demilec and Huntsman.

Tom's SPFA efforts include Chairman of the Consultants Committee, member of the Building Envelope Committee, Advocacy Committee, Training Committee and Geotech Committee.

As an independent consultant Tom is here to help you succeed.

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SPRAY POLYURETHANE FOAM ALLIANCE

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Even an agreement by competitors that is for the good of society and our industry may be a violation of the antitrust laws if it could affect competition.

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Ensure that every SPFA meeting, where members are present, has an agenda, the agenda is followed, and minutes are kept by SPFA staff of the proceedings.

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Today's Presentation

Focus on Non-Residential Roofing Only

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Focus on Non-Residential Roofing Only

Learning Objectives

The SPF Roofing Market and how we sell

Identify key Market Drivers

Identify the missing piece – Energy ROI

Identify how to include Energy ROI in bids

Roofing Market Stats

Total Roofing Market	U.S. $25.7B (2022)
Retrofit Roofing	94% of all N.A. roofing (Res + Comm)
Non-Residential	45% ($10.6B) of all U.S. Roofing
All forms of Roofing Systems	PIR Board, XPS/EPS Board, PUR/SPF
Direct to Metal Reflective Coatings	Acrylic, silicone, PU Hybrid

Roofing Market It's Big

Big Potential

Several large SPF roofing companies in U.S.

- 20+ rigs
- 100+ employees

Established application Early 1960's

40 SPFA Contractors under "Roofing" in the directory

Roofing Market Players

Most SPF Systems Manufacturers (*list does not include all)

- BASF
- Carlisle
- General Coatings / UPC
- NCFI

Documentation and Certifications as a Material and as a System

ASTM C 1029 Compliance
Dade County
CRRC
California Bureau of Home Furnishings

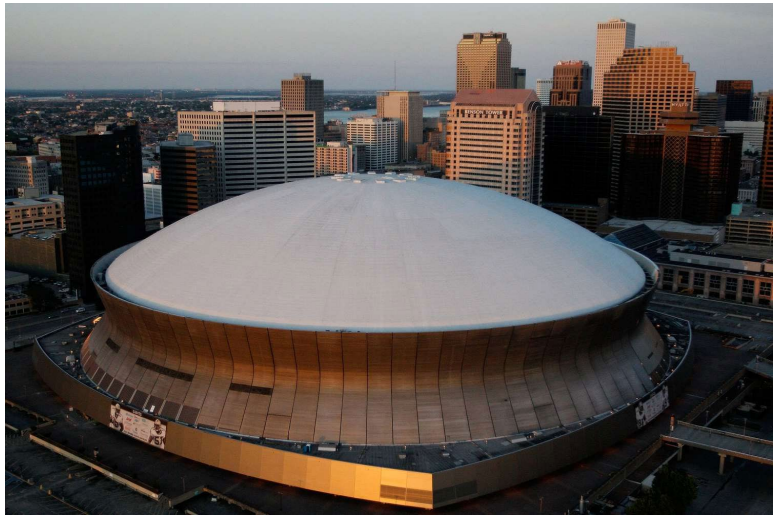
UL 790 Class A NC Rated
Warranty Requirements

Roofing Market It's Big

Big Roofs

10,000 sqft. To > 1M sqft.

$50K To $10M



Roofing Market It's Big

Big Problem

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Difficult to differentiate yourself from your competitor other than price

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Reputation	Past Performance
Safety Record	Certifications
Speed	Reduced Business Impact
Follow up services	Warranties / Maintenance Packages

Roofing Market Sales Driver

Retrofit Market

Water Leaks

Safety Issue, Premature Structural Failure, Ugly

Roofing Market Sales Driver

Retrofit Market

Water Leaks

Roofing Market Sales Driver

Retrofit Market

Water Leaks

NEED TO BE VISIBLE AND RESPONSIVE WHEN NEEDED

Social Media

Cold calling on the building owner

Roofing Market Sales Package

Retrofit Market

Water Leaks and Warranty (That's a given)

Roofing Market Sales Package

Retrofit Market

Water Leaks and Warranty (That's a given)

NEED Something NEW and UNIQUE

Roofing Market Sales Package

Retrofit Market

Water Leaks and Warranty (That's a given)

NEED Something NEW and UNIQUE

NEED to talk about Financial Payback and Environmental Impact

Roofing Market Sales Driver

Retrofit Market

Inflation Reduction Act 179D Tax Credit

Work must meet the criteria established by the Federal Gov't

- 25% energy ***cost*** reduction year/year
- Work completed within same year (credit 1 year only)
- Work completed with prevailing wage
- Savings estimate calculation must be accepted by administrator
- Completed work must be verified to meet original SOW

Building Owner ROI

Can’t put a price on Safety

Can’t put a price on Esthetics

Can’t put a price on Comfort

} Necessary Evils

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} Necessary Evils

The ONLY financial attribute is Energy Savings through reduced fuel consumption.

Question: ***How much Energy is this new roof going to save me?***
How much money is this new roof going to save me?

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Building Owner Values

New Warranty	Financial Value	??
No more Leaks	Operational Value	??
Saving Money	Financial Value	??
Reducing Carbon footprint	Environmental Value	??

Building Owner Values

New Warranty	Financial Value	??
No more Leaks	Operational Value	??

Saving Money	Financial Value	$$
Reducing Carbon footprint	Environmental Value	CO2e

We can now identify the specific $$ and CO2 reduction

To Solve the Energy Question

Current Energy Consumption – Predicted Energy Consumption = Savings

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To increase energy efficiency, we:

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Eliminate Air Leakage in the Roofing System

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Increase Insulation in the Roofing System

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Current Energy Consumption – Predicted Energy Consumption = Savings

To increase energy efficiency, we:

Eliminate Air Leakage in the Roofing System

Increase Insulation in the Roofing System

Increase Reflectivity in the Roof Surface

Current Energy Inputs

Location of Building	HDD/CDD
Type of Heating	NG/Electric/Oil
Cost of Heating Fuel	Sub Meter? Monthly $$ / Yearly $$
Type of Cooling	Electric (plug load ??)
Cost of Cooling Fuel	Sub Meter?
Type of Building	# of Story's / sq ft.

Current Roof Inputs

Type of insulation

# of layers of insulation

Thickness of insulation

% wet insulation

Covering type

Covering color

Don’t we do this already when we prepare a bid?

To Solve the Energy Question

Eliminate Air Leakage in the Roofing System

All roof assemblies have an “as built” air leakage rate which changes over time.

Inspect the roof and identify the size of the holes.

If we plug the holes and seal the edges, we can eliminate the air leakage.

- Roof drains
- Penetrations
- Dividers
- Perimeter

Reference: NRC Canada SIGDERS report 2010

Air Leakage Inputs

Add up all the little leaks and determine the “equivalent leakage area” (the big hole)

How much air is moving through the big hole is determined by the driving force (HDD/CDD) and the time the owner calls for energy (set points and times)

Determine the cost the owner paid to condition all the air moving in/out of the building through the roof assembly.

If we plug the holes – the air leakage goes to 0 and we keep the $$.

Air Leakage Inputs

Spray Foam and Coating – superior sealing capability

To Solve the Energy Question

Increase Insulation in the Roofing System

Increase R-value to Code requirements.

- Spray Foam – no deduction for fasteners / no deduct for board gaps

Insulation Inputs

Type of insulation	% wet
Type of Fastener	Seams
Type of Structural Deck	Air barrier?
Vapor Barrier?	Penetrations

To Solve the Energy Question

Increase reflectivity in the Roof Surface

Reflective coatings and colors are beneficial and get credit

- SPF roof coatings are available in high reflectivity versions - CRRC

Protective Covering Inputs

Color plays a role	White / Grey / Dark
Texture of the Covering	Granular / Rock / Smooth
Termination at Edges/Details	Sealed / Turn-bar
Fastening Method	Mechanically / Fully Adhered
Seams	Length of seam / seamless

SPF / Fluid Applied Coatings have BIG Advantages

Energy ROI Modeling Programs

Now that I have all this information…….

What do I do with it?

Energy ROI Modeling Programs

www.energyplus.net DOE/NREL

Energy ROI Modeling Programs

www.energyplus.net

DOE/NREL

https://www.ibpsa.us/best-directory-list/

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www.energyplus.net DOE/NREL

https://www.ibpsa.us/best-directory-list/

BEAT® Roofing Energy Audit

https://letstalkpur.com/beat/

Summary

Energy Reduction Model needed for IRA's 179D Tax Credit Application

ROI can be predicted through energy conservation

Environmental Impact is important and becoming a requirement

Modeling programs are complex – too broad (no Environmental Impact)

Way for Contractors to differentiate

A potential revenue stream – the business of Energy Auditing