

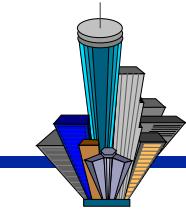
# ***SCCA Presidents Forum***

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## ***Roof Systems, Consultants and More...***

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**June 21, 2014**

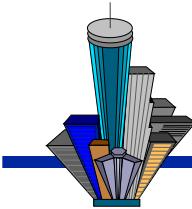


# Overview

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- **Consultants**
  - **Role**
  - **Scope**
  - **Selection**
- **Roof assemblies**
  - **Flat**
  - **Sloped**
  - **Coatings**

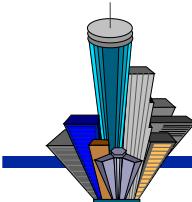
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# ***Roof Consultants: General***

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- **What is a Roof Consultant ?**
  - **Designs, specifies and manages repair and replacement of roofing, waterproofing and exterior wall systems.**
  - **Many also specialize in forensic investigation, expert witness testimony and construction document preparation.**
  - **Acts as owner's representative as needed.**



# *Roof Consultants: Types*

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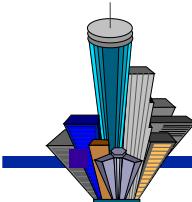
- **Large Architect Engineer firms**

- **Pro:**

- **Design professionals: Architects/ Engineers**
    - **Multiple employees**

- **Con:**

- **Often not roof specialists**
    - **None in Brevard County**
    - **More expensive**



# ***Roof Consultants: Types***

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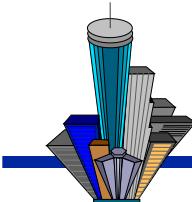
- **Roofing Contractors (including ex-contractors)**

- **Pro:**

- **Often very technically knowledgeable.**
    - **Know where corners are cut and what to watch for.**

- **Con:**

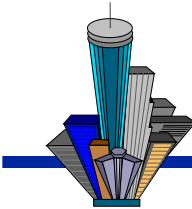
- **Not experienced in conveying their knowledge to construction documents.**
    - **Not trained to manage construction projects from the owner's perspective.**



# ***Roof Consultants: Types***

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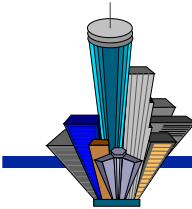
- **Professionals from Academia or Government**
  - **Pro:**
    - **High knowledge base.**
    - **Wider variety of experience.**
    - **Cost effective.**
  - **Cons:**
    - **Not established firms.**
    - **Small one man show- must go on trust more than large firm.**



# ***Roof Consultant Typical Tasks***

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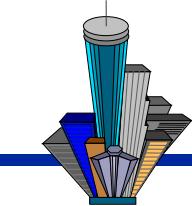
- **Reports**
  - Storm or insurance damage assessment.
  - 20 year maintenance plan/reserve accounts.
  - Condition surveys.
  - Repair existing or replace?
- **Design Services**
  - Drawings and specifications.
  - Construction cost estimates.
  - Assists with contractor selection/bid process.
  - Assists with contract preparation.
  - Meetings (pre-bid., pre-construction, etc.).



# ***Roof Consultant Typical Tasks***

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- **Construction Services:**
  - Owner's technical expert.
  - Field inspections.
  - Change orders.
  - Approval of invoices.
  - Final buy off of project.
  - Warranties and lien releases.

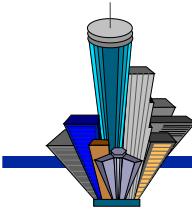


# ***Roof Consultant: Selection***

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- **Risk vs. cost**
  - **Where is your personal comfort level?**
- **Thoroughly investigate the firm you propose to hire**
- **Make the right decision for your organization.**

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# Flat Roof Assemblies

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- **Built Up**

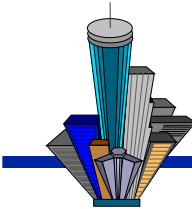
- **Oldest type of roof system, dating from nineteenth century. It consists of multiple plies of asphalt saturated felt mopped in layers of hot asphalt. May be coated, graveled or covered with mineral granules.**

- **PRO's:**

- **Robust system if properly designed and installed.**

- **CON's:**

- **Difficult to install.**
  - **Shrinking pool of contractors to install.**
  - **High maintenance.**
  - **Relatively expensive.**



# Flat Roof Assemblies

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- **Single Ply**

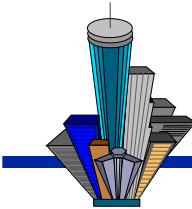
- Single layer, generally thermoplastic rubber with fabric reinforcement. Mechanically attached.

- PRO's:

- Minimal maintenance.
    - Reasonable cost, less than asphalt systems.
    - Good pool of contractors.
    - Works well as overlay to existing roof.
    - High solar reflectance, FPL rebates.

- CON's:

- If punctured, only one layer.



# Flat Roof Assemblies

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- **Modified Bitumen:**

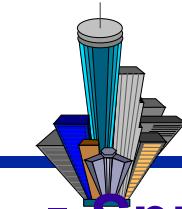
- Similar to built up except asphalt has been chemically modified to be flexible with multiple layers of reinforcing within the roll.

- PRO's:

- Robust system if properly designed and installed.
    - Leading system is US today; good pool of contractors.
    - Moderate maintenance required.

- CON's:

- Relatively expensive.



# Flat Roof Assemblies

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- **Spray Polyurethane Foam:**

- Two part foam sprayed directly on roof surface and coated with an elastomeric coating to protect the foam from the sun.

- **PRO's:**

- Good wind resistance.

- **CON's:**

- Poor choice for Florida.

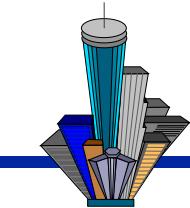
- Required temperature and humidity requirements that rarely occur in Florida except part of winter.

- **Expensive.**

- **High maintenance.**

- **Poor selection of contractors.**

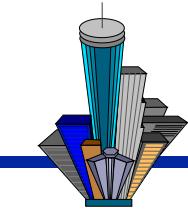




# *Flat Roofs: Ponding Water*

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- **Ponding water**
  - Premature aging of most flat roof systems if subjected to ponding water.
  - Ponding is defined as water standing for at least 48 hours.
  - Florida Building Code requires “positive drainage” on roof replacements.
  - Manufacturers can void their warranties if ponding water is present.



# *Sloped Roof Assemblies*

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- Tile

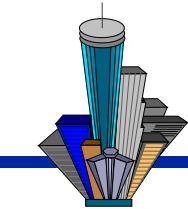
- **Fired masonry product, either clay or concrete, installed over underlayment with fasteners or adhesive. Clay is inherently waterproof; concrete is not and depends on the underlayment.**

- **PRO's:**

- **Minimal maintenance if installed correctly.**
- **Tile can last 50 years if properly designed.**
- **underlayment and flashings can go 35-40.**
- **Curb appeal on high end properties.**

- **CON's:**

- **Expensive.**
- **Slow to install on high rise mansards.**
- **No extended manufacturer's warranty.**



# *Sloped Roof Assemblies*

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- **Metal**

- Formed sheet metal, either aluminum or steel, generally with factory coating, installed with mechanical fasteners.

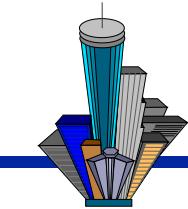
- **PRO's:**

- Minimal maintenance if installed correctly.
- Metal can last 20 plus years if properly designed.
- Cools down quickly.
- Good wind resistance if properly designed.

- **CON's:**

- Expensive.
- Corrosion issues with steel beachside.
- Fading problem with coating in Florida.

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# *Sloped Roof Assemblies*

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- Asphalt Shingles

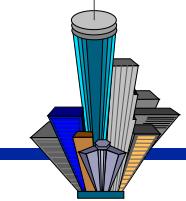
- Shingles are fiberglass mats, saturated with asphalt and surfaced with mineral granules.

- PRO's:

- Minimal maintenance if installed correctly.
    - Rated as high as 40 years; 25 is better estimate for high end shingles.
    - Wind rated up to 135 mph.
    - Relatively inexpensive.
    - Established technology with good contractor base.

- CON's:

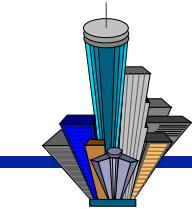
- Difficult to apply on high rise mansard areas.



# *Roof Coatings: General*

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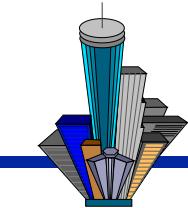
- Coatings are generally of two main types.
  - Water based (elastomeric).
    - Cheaper
    - Cannot stand ponding water.
    - Can also be used on adjacent masonry areas.
    - Relatively short lifespan- recoat in 5-10 years.
  - Solvent based (urethane or silicone).
    - Expensive
    - Better resistance to water.
    - Longer life span- 10 plus years.



# *Roof Coatings: When to Coat?*

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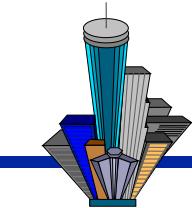
- A coated roof is not a new roof.
  - All of the sins of the old roof remain.
    - Resistance to wind uplift?
    - Water under the old roof?
    - Poor drainage?
  - Before coating, do life cycle analysis
    - New 25,000 SF roof costs \$200,000 and lasts 20 years. (\$10,000 per year)
    - Coating cost \$75,000 plus recoating twice within the 20 year period. (\$11,250 per year).
    - Still old roof.
- May coat to buy time



## ***Other Considerations: Warranties***

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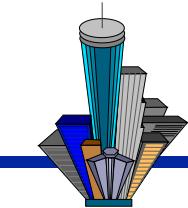
- **Warranties: Manufacturers and Contractor**
  - Contractor is usually 2-5 years and dependent on the contractor staying in business.
  - Manufacturers vary from 10-20 and are backed by large corporation.
    - Material only
    - Labor and material
    - No-dollar-limit
  - Honoring varies with manufacturer.
    - Very good: Siplast, Soprema and Manville
    - Very bad:



## ***Other Considerations: Codes***

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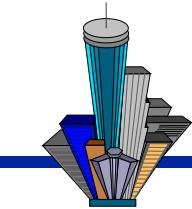
- **Code requirements:**
  - In Florida, all roof assemblies must be approved exactly as tested.
    - Enforcement varies by municipality.
      - Cocoa Beach and Melbourne Beach strict.
      - County not so much.
  - Cannot substitute different elements.
  - Approved on State's Approved Product List or Miami-Dade Notice of Approval.
  - Building department should check this, owners should get a copy of documentation with proposal.



## *Other Considerations: Wind*

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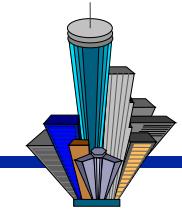
- Wind is single largest factor affecting roof performance in Florida.
  - Maximum windspeed in 2003-2004 hurricane season on land was 88 mph.
  - We have not seen big storm in 50 plus years.
- How to keep roof on building:
  - Calculate wind speed as per ASCE-7 standard.
  - Select roof assembly rated at that speed or greater.
  - Install as per standard.
  - Takes out all guesswork; the main remaining risk factor is quality of installation.



## **Other Considerations: Corrosion**

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- This section of the Florida coast is the single most corrosive region of the continental United States.
- Extend roof life by:
  - Using stainless steel on all exposed metals.
  - Use aluminum supports for roof top air conditioning equipment.
  - Use stainless straps and fasteners to hold a/c units to stands.
  - Seacoast rating on the actual condensing units.
    - Periodically wash down the mechanical units.
- As the doors for mechanical rooms or roof access fail, replace with aluminum units with stainless frame.
  - More expensive, but will last 20 plus years.



# Questions?

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