This presentation is courtesy of
SEALANT PERFORMANCE – JOINT DESIGN

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Originally presented at:
ASC Caulks and Sealants Short Course
April 2005
ABSTRACT BREAKDOWN

- This presentation will deal with issues affecting our industry that lead to certain failure of sealants or joint performance.
- Some of the causes of these failures are improper design, incomplete specifications, improper application or use of sealant, as well as improper application.
- Our only choice is to focus on education and the sharing of information with the three components of construction (the designer, the manufacturer, and the applicator).
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- Our only choice is to focus on education and the sharing of information with the three components of construction (the designer, the manufacturer, and the applicator).

- We will discuss how to accomplish this as well as where to turn to for help and information.
Steve Walter

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Co-Owner of Trisco Systems, Inc., of Lima, Ohio

President of Restoration Consulting Services, Inc.

Past President of Sealant Waterproofing and Restoration Institute

Formed in 1975

To enable applicators to discuss and solve common problems

Establish a closer rapport with Architects and Engineers

Originally a contractor-based organization represented by Principals

Currently have numerous manufacturers represented by department managers
1993 allowed Associate members (Designers, Consultants, Engineers)

One Purpose: Promote open exchange of ideas for the development of the highest standards and operating efficiency within the sealant, waterproofing and restoration industry.

Clearinghouse sessions
THE BASICS:
THE EVOLUTION OF CAULKING/SEALANTS

- **Oakum:** used for filling seams in boats.
- **Oil-Based Caulks:** fill gaps but little movement capabilities.
- **Acrylics:** a little better movement capabilities.
- **Polysulfides:** discovered by accident in 1927. Enhanced in the 1950s.
- **Polyurethanes:** developed in 1940 by Otto Bayer in Germany.
- **Silicones:** spurred by the need for increased flexibility and longevity.
THE BASICS:

types of sealants available today

- Polysulfides
- Polyurethanes
- Silicones
- Acrylics
- Precompressed expanding foam
- Preformed joint tape
- Preformed extruded thermoplastic expansion joints
- Fire Stops
- Myriad of hybrids of the above
- Sometime all of these are on the same job site
CONDITIONS WE ARE SUBJECTED TO EVERY DAY

- Specifications
- Competition
- “Real World” Project Conditions
- Field Conditions
- Sealant Installation “Opportunities”
- Remedial Challenges
CONDITIONS WE ARE SUBJECTED TO EVERY DAY:
SPECIFICATIONS

✓ A Recent Specification

1. Mildew-resistant silicone sealant (5 manufacturers)
2. Multicomponent nonsag urethane sealant (14 each)
3. Multicomponent pourable urethane sealant (9 each)
4. Single-component nonsag urethane sealant (7 each)
5. Single-component pourable urethane sealant (5 each)

✓ Caulk all control joints (expansion joints)

✓ 20 year+ warranties
CONDITIONS WE ARE SUBJECTED TO EVERY DAY:

**COMPETITION**

- Generally small firms
- Branches of waterproofing companies
- Branches of restoration companies
- In and out of business continually
CONDITIONS WE ARE SUBJECTED TO EVERY DAY:

“REAL WORLD” CONDITIONS

- Sealants are a commodity, like carpet
- “Get here now!”
- “Leave here now!”
- “I don’t care what the weather is--get it done!”
- “I don’t care what the joint size is--caulk it!”
- “Just get the goo in the joint.”
CONDITIONS WE ARE SUBJECTED TO EVERY DAY: FIELD CONDITIONS

- Contaminated joint
- Improperly sized joint
- Cure times of mortar/concrete
- Movement during cure
- Expansion joints vs. control joints (debris in joint)
- “Hey boss, we saved money on this job--I used all the big cans and brought back all the little ones”
- What’s in the tube?
- To prime or not to prime? What did I bid?
CONDITIONS WE ARE SUBJECTED TO EVERY DAY:
INSTALLATION “OPPORTUNITIES”

- Different type of metals
- Glass (structural and nonstructural adhesives)
- Masonry
- EIFS
- Synthetics/plastics
- Concrete (poured and precast)
- Wood
- Light and dark colors
- Multiple combinations of all the above on one job!
CONDITIONS WE ARE SUBJECTED TO EVERY DAY:
REMEDIAL CHALLENGES

- What did the last guy do?
- Subsurface and structural factors
- EIFS and mold
- Asbestos in old sealant materials
- What will happen to the building after we do this repair?
- Contaminants or other bond inhibitors
- Sealant staining
- What material do I use? Designing repairs.
- Increased liability
RESULTS OF THESE CHALLENGES

- Any one or combination of the previous conditions will result in failure!
- Immediately
- Right after the warranty period
- Within a few years after completion
- 60% of call backs are water-related
- “Build it out of brick--it lasts forever!”
WHAT CAN WE DO?

DESIGNER/ SPECIFIERS

1) Know what you are specifying and why.

2) Be clear and/or show designed joint dimensions and tolerances.

3) Be more involved with field quality control.

4) Specify using primers--don’t rely on “per manufacturer’s recommendations.”

5) Demand and be involved with field-testing (i.e., pull tests). State this in the specifications.
WHAT CAN WE DO?

MANUFACTURERS/ DISTRIBUTORS

1) Provide technical competence in the field.

2) Provide “Help”--we don’t want to be sold!

3) Tell us when a product won’t work.

4) Develop simple guidelines when and how to use your product.

5) Stop selling long-term warranties or clarify.

6) Support a good specification and don’t support an improper specification.
WHAT CAN WE DO?

APPLICATOR

1) Become better educated--in the field (owner and manager challenge).

2) Don’t take the job on the cheap (evaluate risk vs. reward).

3) Document nonconforming joint conditions.

4) Do not install when conditions are detrimental to performance.

5) Instill quality control measures in the field (perform own pull tests).

6) Don’t give in to extended warranty pressure, and be honest that all jobs have a recognized percentage of joint failure.
HOW DO WE TURN A MARKET AROUND?

HOW DO WE TURN AN INDUSTRY AROUND?
MAKE A CHANGE!

**Sealant Validation**
- Independent NVLAP lab testing of off-the-shelf product
- Test to ASTM C-719, ASTM C-794, and ASTM C-661
- Receive validation number and certificate and seal for literature
- Contact Sealant Waterproofing and Restoration Institute

**Contractor Certification**
- Mean it!
- Training

**Predesign Conferences**

**Preconstruction Conferences**
MAKE A CHANGE!

- "In-Process" Investigations
- Industry Alliance and Sharing
- Industry Education
  - Promote education to designers and applicators
  - Stimulate and provide forum for open and frank debates
- Promote "Partnering" for Projects
- Stop Treating Caulking as a Commodity
- Establish Industry Standards
SUCCESSFUL PROJECT

DESIGNER

APPLICATOR

MANUFACTURER
For more information...

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