



THE ADHESIVE AND SEALANT COUNCIL, INC.

February 22, 2007

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Office of Policy Development and Research, Room 8134
451 Seventh Street, SW
Washington, DC 20410

SUBJECT: Progress Report – January 2007

Contract No. H-21521CA, Investigation of Adhesive Applications for Strong and More Disaster-Resistant Roof Assemblies – Phase 1

Period of Performance: 4/7/06 – 10/7/07

Contractor: The Adhesive and Sealant Council, Inc.
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Email Attachments which Accompany this Report:

- None

SECTION I – INTRODUCTION

The HUD Office of Policy Development and Research has been extensively involved in supporting research and development on building technology innovations, construction systems, products, standards, regulations, and code issues which affect the affordability, safety and livability of the nation's housing. As the interrelationships of these topics become more complex, the continued need to conduct research and demonstrations becomes even more critical.

In addition to the research and demonstration efforts administered directly by the Office of Policy Development and Research, HUD administers the Partnership for Advancing Technology in Housing (PATH) program. PATH provides private and public sectors for the U.S. housing industry an unprecedented opportunity to advance state of the art practices in the design and construction of affordable housing for the public by accelerating the process of developing and introducing new and innovative technologies and new materials through demonstrations and pilot projects throughout the nation.

This cooperative agreement with the PATH program will investigate and characterize the use of adhesives to fasten roof sheathing materials to underlying roof structures in residential buildings. This application of adhesives holds the potential for improvements in roof system durability and disaster resistance, and applies to both new and existing construction.

SECTION II – PROGRESS AND SCHEDULE

Phase 1 of this project consists of 4 tasks. The status of each task is presented below.

This monthly report reflects a period of performance of 18 months as noted in the previous monthly report. Dates for several task deliverables now reflect this period of performance.

Task 1. Assess Performance Requirements and Develop Criteria for Adhesive Consideration

Start Date: 04/15/06

Deliverable & Due Date: Summary of adhesive-based roofing attachment systems, relevant building code, relevant product standards, and related research programs. Submitted to GTR 8/22/06.

Progress and Deliverables:

Task 1 called for ASC and its subcontractor Newport Partners (NP) to better understand the performance requirements needed from adhesives used in roof assemblies by a) canvassing building code and product standards, and b) investigating related research and product testing. Together ASC and NP have completed this task by engaging dozens of industry stakeholders, including ASC members and non-member adhesive manufacturers, researchers from academia and private firms, industry associations, building code bodies, and international groups involved in research and testing. Findings can be grouped into the following categories:

- Similar research and product development efforts
- Findings on the most suitable applications for similar systems (e.g. retrofit of existing roofs)
- Relevant building code issues that affect the application (e.g. issues with fire blocking for foam plastics)
- Relevant building performance and installation issues which have been raised (e.g. restricting ability of sheathing panels to expand/contract with ambient humidity changes)

The results of these research efforts are presented in the Task 1 summary report submitted to HUD in August 2006.

We are also attempting to gain access to the recent PATH-funded research conducted by Virginia Tech on use of acrylic tapes in wall construction. We have discussed this possibility with both Virginia Tech and the GTR, and will continue to monitor the availability of the research findings.

Task 2: Assessment of Industry and Market Factors

Complete by March 1, 2007

The objectives of this task are to:

- Conduct assessment of jobsite factors which are involved when using adhesive-based systems (especially in new construction). More information is needed on these issues to understand the magnitude of potential barriers.
- Investigate and characterize insurance industry programs focused on encouraging improved water resistance and uplift resistance for roof systems (new and existing) to mitigate future damages. This will improve our understanding of industry interest in applications involving adhesives.
- Determine the most feasible application(s) moving forward based on performance, building code, “constructability”, and market factors. This effort involved a roundtable discussion of adhesive manufacturers at the ASC Fall Convention to get their input.

Task 2 Deliverables:

- Summary report of jobsite factors, including assessments of different application strategies
- Summary report on insurance industry initiatives which could impact adoption of adhesive-based systems

Task 2 Progress:

In January we continued dialogue with stakeholders involved in the development of insurance industry programs to incentivize mitigation measures to reduce windstorm damages in new and existing homes. Groups we are engaging include the Texas Department of Insurance (TDI), which oversees regulation of insurers in the state of Texas and works with the Texas Windstorm Insurance Association (TWIA). TWIA is the “insurer of last resort” for windstorm and hail insurance coverage for structures located in designated catastrophe areas along the Texas Gulf Coast. In this role TDI evaluates building specifications for new and existing structures, and plays a role in the adoption of mitigation measures that could result in an insurance premium discount for homeowners.

Our goals in engaging TDI are to:

- provide them with background on the use of adhesives to strengthen residential roof systems
- explore opportunities to introduce adhesive-based applications to Texas code provisions that provide an insurance discount to homeowners.

In a similar way we have also engaged insurance officials from the state of Florida to investigate these same questions as well as the Institute for Business and Home Safety (IBHS).

We recently connected with a DOE-funded program to help the insurance industry better understand and implement damage mitigation incentive programs. The contractor working on this program is holding meetings with groups like TDI, helping states like Texas draft legislation setting up incentive programs, and holding stakeholder meetings to get insurance groups educated on mitigation incentive programs for new/existing housing.

Through these dialogues we are becoming familiar with current legislation, the current use of incentive programs, and how adhesive-based roof systems could fit into developing insurance programs. We will summarize all of these findings in an update on insurance industry issues in February-March.

Task 3: Code Evaluation and Preliminary Tests

Complete by June 1, 2007

The objectives of this task are to:

- Explore solutions to code issues for the chosen applications: including the fire protection issue and the pathway for meeting performance-based suction load requirements. Work under this task would include interacting with adhesive manufacturers to develop potential approaches, such as making an adhesive less flammable per ASTM testing.
- Conduct preliminary testing (in conjunction with ASC members or other manufacturers) to evaluate system performance and assess potential solutions to constructability issues. For example, testing of mocked-up new construction roof systems might employ a pre-applied adhesive tape applied to the top surface of the truss.

Task 3 Deliverables:

- Summary of relevant code issues and strategies for compliance
- Summary of preliminary testing – including test design, findings, and recommendations

This task depends on the output of Task 2 and is not yet underway.

Task 4

Complete by October 30, 2007

The objectives of this task are to:

- Summarize, based on results of Task 3, current “gaps” in adhesive-based roof sheathing attachment systems in three core areas: 1) performance testing, 2) codes, and 3) solutions to constructability issues.
- Develop a primer on using adhesives to strengthen roof systems. Guidance document would be aimed at the appropriate audience, e.g. if the application is new construction the audience would be builders and contractors; for retrofit applications the audience would be contractors, roofers, and DIY homeowners. The short (~ 2 page) primer will explain the

benefits of using an adhesive-based system, the intended application, and recommendations for materials.

Deliverables:

- Report on findings and remaining information gaps
- Primer on using adhesives to strengthen roof systems

Task 4 Progress:

Also, we will be presenting the project and its current findings at the ASC Spring Convention on April 15-18 in Savannah, Georgia.

This effort will increase the visibility of the project within the adhesives industry and potentially enhance the contributions of manufacturers to the research.

SECTION III – PLANNED EFFORT

Activity for February 2007 will focus primarily on researching and prioritizing the information gaps and needs based on our dialogue with insurance industry groups.