



THE ADHESIVE AND SEALANT COUNCIL, INC.

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Luis Borray
U.S. Department of Housing and Urban Development
Office of Policy Development and Research, Room 8134
451 Seventh Street, SW
Washington, DC 20410

SUBJECT: Progress Report for November 2008 – FINAL MONTHLY REPORT

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

Period of Performance: 4/7/06 – 11/28/08

Contractor: The Adhesive and Sealant Council, Inc.
7101 Wisconsin Avenue, Suite 990
Bethesda, MD 20814

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 consisted of 4 tasks. The status of each task is presented below.

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

Completed

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

Task 2: Assessment of Industry and Market Factors

Completed

In March 2007, a summary report title “Insurance Incentives for Wind Mitigation Measures” was submitted.

As a second part of this task, we have assessed jobsite factors which need to be considered for the successful use of adhesives in both new and retrofit applications. A summary of jobsite factors was submitted in the monthly report dated April 19, 2007.

Task 3: Code Evaluation and Preliminary Tests

Phase I Testing - Completed

Task 3 Deliverables:

- Summary of preliminary testing
- Summary of relevant code issues and strategies for compliance

Testing activities are laid out in Phase I and Phase II activities below. Phase I activities have allowed us to better understand the application and potential market segments where it would provide the most value for housing durability. Phase II testing needs, which are subject to additional project funding by HUD, will provide more complete technical performance data, which will enhance the likelihood of integrating this application into regulatory and insurance programs.

Phase I Testing & Evaluation

1. Field Trial of Applying Adhesives in Site Built Single-Family Housing - Completed

- Summary of field trial for new construction was submitted August 2007 to HUD.

- As an addition to this subtask, we conducted a case study on the use of adhesives in a retrofit project. In April 2008, Newport Partners conducted a case-study in Florida with a commercial provider of a spray-applied spray adhesive system. A case study report was submitted to HUD in May 2008.
2. Explore potential applications in the factory-built housing segment - **Completed**
 - Conduct in-house factory assessment using adhesives in roof systems, and assess performance enhancements (e.g. reduced damage during transport) and product implications.
 - In 2007, Newport Partners met with a modular home builder at their production facility in Pennsylvania. The meeting summary was provided in the monthly report dated July, 18, 2007.
 3. Research of traditional construction techniques - **Completed**
 - Conduct background research and preliminary field testing as deemed necessary on the reliability of typical roof deck installations (e.g. nail misses, adherence to spacing requirements)
 - The findings are summarized in the May 2008 monthly report.
 4. Demonstration of enhanced roof systems using adhesives - **Completed**
 - Conduct field trial to gather information on the process of roofing a new home when applying tape adhesives (in addition to traditional nailing) to the roof trusses. The adhesive was applied to a portion of the structure to help compare the roofing process when applying adhesives to when not applying adhesives. Information on the application process, constructability issues, impacts on other building systems, and stakeholder perceptions were gathered by documenting the construction process and conducting pre- and post-interviews with the construction crew.
 - The findings were submitted to HUD in two separate case study reports in December 2008.

Phase II Testing (Subject to Additional HUD Funding in Phase II)

Based on the investigations and research conducted under Phase I, it is evident that this application of adhesives in residential construction offers the potential to enhance roof durability and quality in a cost-effective manner which is reasonable to integrate into the housing production environment. As part of this assessment, several critical research/testing needs have clearly emerged. These needs should be addressed as part of a Phase II to this project and conducted in cooperation with adhesive manufacturers, who are very supportive of this effort. These testing needs are identified and described in the report: “Research Summary and Gap Analysis”, submitted to HUD in December 2008.

Task 4: Analysis and Outreach

Completed in November 2008 (per project extension)

The objectives of this task are to:

- Develop a primer on using adhesives to strengthen roof systems for home owners (retrofit applications). Primer was submitted to HUD in August 2008. - **Completed**
- 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. Gap summary was submitted to HUD in December 2008 – **Completed**

Deliverables:

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

SECTION III – PLANNED EFFORT

Project was closed out in November. ASC will investigate opportunities for a Phase II grant with HUD in the coming months.