



THE ADHESIVE AND SEALANT COUNCIL, INC.

June 16, 2006

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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 – April-May 2006**

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

Period of Performance: 4/1/06 – 5/31/06

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 AD SCHEDULE

Phase 1 of this project consists of 4 tasks as identified in the project Work Plan. The status of each task is presented below.

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

Start Date: 04/15/06

Deliverable & Due Date: Matrix identifying code-approved systems and uplift resistance or wind speed approved rating for new and retrofit roof sheathing fastening systems - 08/07/06

Progress and Deliverables:

The primary objective of Task 1 is determining what criteria will be used to identify adhesives which could be used as a roof sheathing fastening system for new and retrofit applications. The main emphasis will be on the structural performance needed to hold down roof sheathing products using adhesives alone or in combination with mechanical fasteners.

Our efforts in April and May under Task 1 included reviewing the types of information called for under this task with ASC and our subcontractor Newport Partners, and developing initial strategies for gathering this data.

One of these strategies is to canvass the ASC membership for information on their use of adhesives in roof assembly applications. Since the member firms within ASC are extremely large, two initial steps which will be required are: 1) to gauge their interest in the work, and 2) to establish the appropriate point of contact. This effort began in May, and we currently have a roster of 15 manufacturers who have expressed interest in participating in the project.

A parallel effort under this task is to examine building code performance requirements for roof sheathing attachment systems. During May we began a review of pertinent building code references, including the 2006 International Residential Code, the *Wood Frame Construction Manual*, and the *Prescriptive Method for Residential Cold-Formed Steel Framing*. These code references contain a mixture of prescriptive and performance-based requirements for the roof sheathing to roof framing connection, which essentially “set the bar” for attachment systems. An example of performance-based requirements from the Wood Frame Construction Manual is shown below.

Roof and Wall Sheathing Suction Loads

(For Sheathing and Sheathing Attachment)

Three Second Gust Wind Speed (mph)	85	90	100	110	120	130	140	150
	Dual Slope Roof							
Sheathing Location ¹	Suction Pressure (psf) ²							
Zone 1	13.4	15.0	18.5	22.4	26.6	31.2	36.2	41.6
Zone 2	25.8	28.9	35.7	43.2	51.4	60.4	70.0	80.4
Zone 3	33.7	37.8	46.7	56.5	67.2	78.9	91.5	105.0
Zone 3 Overhang	41.9	47.0	58.0	70.1	83.5	98.0	113.6	130.4
Zone 4	14.5	16.2	20.1	24.3	28.9	33.9	39.3	45.1
Zone 5	17.9	20.1	24.8	30.0	35.6	41.8	48.5	55.7

Minimum Design Suction Pressures for Sheathing

Source: Wood Frame Construction Manual

Task 2. Data Collection

Start Date: 07/15/06

Deliverable & Due Date: Matrix of adhesives with potential to be implemented as a primary or secondary roof sheathing fastening system - 01/08/07

Progress and Deliverables:

Within Task 2, Newport Partners staff will compile information on adhesives used for similar or relevant applications to roof sheathing fastening. This task will involve engaging the ASC membership to review products against the performance criteria identified in Task 1, as well as a scan of research literature, trade press, and manufacturer product data. The output will be a matrix of adhesives with potential to be implemented as a primary or secondary roof sheathing fastening system, as identified by third party sources or manufacturer data. This adhesive matrix will include properties such as: primary fastener potential, secondary fastener potential, field applicable, product rating translates easily to code requirements, etc.

There is no progress to report under Task 2 for April-May 2006.

Task 3. Cost Analysis

Start Date: 11/15/06

Deliverable & Due Date: Summary of basic cost estimates – 02/26/07

Progress and Deliverables:

The marketability of any adhesive roof sheathing fastening system identified within this Task 2 will depend heavily on its initial and installed costs. Task 3 will involve analysis of the costs of using adhesives and identify the benefits for new and retrofit applications.

There is no progress to report under Task 3 for April 2006.

Task 4. Preliminary Testing of Adhesive Roof Sheathing Fastening Systems

Start Date: 11/15/06

Deliverable & Due Date: Summary of basic cost estimates – 02/26/07

Progress and Deliverables:

For any innovative building material or system to gain market acceptance and code or standard approval, testing and verification must be performed. From those adhesive systems that have been identified as having the potential to meet or exceed code requirements while presenting an affordable alternative to current practice, a sample set will be chosen to undergo preliminary testing. The primary function of these preliminary tests will be to evaluate the product’s performance and determine whether the adhesive system should be further evaluated for inclusion in code or development of a standard.

There is no progress to report under Task 4 for April 2006.

SECTION III – OUT OF TOWN TRAVEL AND FUNDING

Travel:

In April-May 2006 no out of town travel occurred. No out of town travel is expected for June.

We have made preliminary arrangements to attend the ASC Fall Convention in Nashville on October 15-18, 2006. We are also planning to provide a short presentation about the project at the convention, and will consider holding a project meeting there as well to engage participating manufacturers.

Funding:

The tables below detail the contract funding status through this reporting period.

CUMULATIVE FUNDING REPORT - HUD FUNDS - \$145,909								
PERIOD ENDING	LABOR COSTS	TRAVEL COSTS	REMAINING		PERIOD ENDING	COSTS	TRAVEL COSTS	REMAINING
05/31/06	5,166.58	62.84	140,679.58		11/30/06	0		
06/30/06					12/31/06	0		
07/31/06					01/31/07	0		
08/31/06					02/28/07	0		
09/30/06					03/31/07	0		
10/31/06					04/30/07	0		

Cumulative Time Report - ASC Staff Labor

183 hours x \$125/hr = \$22,875

Period Ending	Hours	Remaining		Period Ending	Hours	Remaining
5/31/2006	2.0	181.0		11/30/2006		
6/30/2006				12/31/2006		
7/31/2006				1/31/2007		
8/31/2006				2/29/2007		
9/30/2006				3/31/2007		
10/31/2006				4/30/2007		

Cumulative Time Report - ASC Member Labor

176 hours x \$150/hr = \$26,400

Period Ending	Hours	Remaining		Period Ending	Hours	Remaining
5/31/2006	0.0	176.0		11/30/2006		
6/30/2006				12/31/2006		
7/31/2006				1/31/2007		
8/31/2006				2/29/2007		
9/30/2006				3/31/2007		
10/31/2006				4/30/2007		

SECTION IV – KEY STAFF CHANGES

None to report.

SECTION V – PLANNED EFFORT

Activity for June 2006 will focus on continuing activity under Task 1.