



Alternative Fuels & Chemicals Coalition

Advocating for Public Policies to Promote the Development & Production of Alternative Fuels, Renewable Chemicals, Biobased Products, and Sustainable Aviation Fuels

AFCC's FY2025 Appropriation Request – THUD #2

NEEDED: More Flexibility in the Nation's Infrastructure Construction & Repair Specifications to Allow for Greater Use of Advances in Technologies, Materials & Best Practices to **REDUCE COSTS, PROVIDE BETTER PERFORMANCE, IMPROVE STRUCTURAL INTEGRITY & EXTEND LONGEVITY**

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Appropriations Subcommittee:

Transportation, Housing and Urban Development, and Related Agencies

THUD Priority: #2

Federal Agency:

Department of Transportation

Agency Account:

Federal Highway Administration, Federal Aid to Highways

Program Title:

Federal Infrastructure Programs (see page 655, Consolidated Appropriations Act of 2023, P.L. 117-328)

Program Description:

See the rationale and explanation, proposed legislative language, and proposed Federal guidance to States that follow.

Amount Requested by AFCC:

\$500,000



Rationale / Explanation – THUD #2

The primary obstacle to being able to implement innovations in infrastructure construction and repair projects that enable high performance, are cost effective, and improve infrastructure sustainability and longevity, are state construction specifications.

These specifications typically prescribe specific steps for construction and repair that must be precisely followed, and which adhere to traditional construction and repair methods.

These specifications in almost every case preclude the use of innovations, unless a state amends its specifications to allow for the use of an innovation which, in the case of many of such amendments, may allow only for the use of a single innovation, or only allow for its use in a single project.

Because of this, localities, States, and the Nation are deprived of the benefits of technologies and construction methods that will enable high performance, are cost effective, improve infrastructure sustainability and longevity, reduce the use of energy, make use of recycled materials and balanced mix designs, and reduce greenhouse gas emissions.

The Environmental Protection Agency’s (EPA’s) [Construction Materials Label Program](#) is a welcome step toward overcoming this obstacle. The EPA released draft criteria on March 5, 2024 on which the EPA is seeking input for Product Category Rules (PRCs) in support of a new label for more climate-friendly construction materials and products as part of the \$100 million [Label Program for Low Embodied Carbon Construction Materials](#) created under the Inflation Reduction Act.

As the EPA points out, “the manufacturing of construction products and materials, such as concrete, asphalt, steel, and glass, accounts for approximately 11% of annual global greenhouse gas emissions”.

The draft criteria were developed with input from stakeholders, including in response to a [Request for Information](#) that was issued last year, and the Department of Transportation’s Federal Highway Administration, the General Services Administration and other federal agencies.

AFCC is requesting that three additional steps be taken to build on and facilitate the implementation of the EPA’s label program. These requests are:



1. The **Proposed Legislative Language – THUD #2** below be added as a new paragraph (14) following paragraph (13) under *Federal Aid to Highways, Federal Infrastructure Programs* (FY2023 Consolidated Appropriations Act, P.L. 117-328, pg. 655).
2. The Center for Accelerating Innovation (CAI) make information available to States on the benefits of using advanced, innovative, transformative, and sustainable technologies, materials, and construction methods to allow States to better understand these benefits and, thus, be willing to incorporate and allow for their use in infrastructure construction and repair projects.
3. The Federal Highway Administration (FHWA) and CAI encourage States to amend existing construction and repair specifications to allow for the use of advanced, innovative, transformative, sustainable technologies, materials, and construction methods in all federally funded surface transportation infrastructure projects.

These requests build on the outreach that AFCC has carried out with its member companies, CAI, the American Association of State Highway Transportation Offices, stakeholder groups, and other trade associations.

AFCC learned through its outreach that the primary obstacle to being able to implement innovations is state construction and repair specifications. This is because the specifications must be followed precisely and adhere to tradition construction and repair methods, thus preventing the use of innovations which have benefits such as extending the useful life of new and repaired infrastructure, saving construction time and cost, lowering greenhouse gas emissions, reducing the use of energy, and the ability to use recycled materials, in lieu of the prescribed standard methods.

AFCC’s proposed legislative language addresses and overcomes these problems to open the way for more widespread use of innovations.

Proposed Legislative Language – THUD #2

Add a new paragraph (14) following paragraph (13) under *Federal Aid to Highways, Federal Infrastructure Programs* (FY2023 Consolidated Appropriations Act, P.L. 117-328, pg. 655) by striking the “and” after “up to 90 percent” at the end of paragraph (12), striking the period after “... 100 percent” at the end of paragraph (13), replacing the period with a semi-colon, add “and” after the semi-colon, and adding the following language:

“(14) \$500,000 shall be transferred to the Center for Accelerating Innovation which shall work with State departments of transportation, state department of transportation associations, and highway construction industry associations to encourage States to allow for and



promote the use of advanced, innovative, transformative, and sustainable technologies and materials in all federally funded transportation projects: *Provided*, That the Center for Accelerating Innovation shall place a notice in the Federal Register, within 90 days following enactment of this Act and, additionally, reach out to States to encourage States to adopt amendments to their infrastructure construction and repair specifications, within 180 days of publication of said notice in the Federal Register, to allow for the use of advanced, innovative, transformative, and sustainable technologies and materials in all federally funded highway projects when said use can be shown to be superior to standard construction and repair methods: *Provided Further*, That the Center for Accelerating Innovation shall ensure that information is available to States on the benefits of using these technologies, materials, and construction methods to allow States to better understand these benefits and, thus, be willing to incorporate and allow for their use in infrastructure construction and repair projects: *Provided Further*, That States shall be encouraged to use the ‘United Facilities Guide Specifications, UFGS-09 97 23.17’ as a basis for said amendments: *Provided Further*, That States shall be encouraged to include the benefits of using advanced, innovative, transformative, and sustainable technologies and materials in assessing the performance and cost-benefits of bids and awarding contracts, including the benefits of better performance, cost effectiveness, improved integrity and longevity, reduced greenhouse gas emissions, and making use of balanced mix designs using recycled materials with no limits on the amounts of recycled material that can be used, in lieu of only awarding contracts to the lowest bidder: *Provided Further*, That the Federal Highway Administration shall ensure that federal highway funds will be available, and won’t be revoked, for States and localities using advanced, innovative, transformative, and sustainable technologies, designs, products, and materials in construction and repair projects.”

Optional Federal Guidance to States – THUD #2

AFCC requests that FHWA and CAI offer the following optional guidance to States in selecting contractors and vendors, in reviewing bids, and allowing for the use of advanced technologies, materials, and construction methods:

“Each State is requested to consider requiring all contractors and vendors who propose to use advanced, innovative or transformative technologies, materials, or construction methods, in lieu of the construction and repair requirements that are



set forth in the State’s infrastructure construction and repair specifications, to submit documentation satisfactory to the State, for the State’s review, describing the advanced technology’s, material’s, or construction method’s prior use, performance, effectiveness, and benefits, including data on improved infrastructure longevity, reduced cost and time to achieve equivalent or better results than standard construction or repair methods, increased use of recyclable materials, reduced energy use, and/or reduced greenhouse gas emissions.

“Contractors and vendors should be requested to provide the State with any approvals that the advanced technologies, materials, and construction methods have received from or for which technical guidelines have been published by the Federal Highway Administration, its Center for Advancing Innovation, State Transportation Innovation Councils, the American Association of State Transportation Offices, industry organizations such as the National Highways Builders Federation and International Concrete Repair Institute, or other States.

“The State is encouraged to use this documentation to determine whether the proposed technologies or materials may be used in the State’s infrastructure construction and repair projects in lieu of or in combination with the construction and repair methods set forth in the State’s specifications.

“States also are encouraged to take the benefits of using advanced technologies, materials, and construction methods into consideration in assessing the cost-benefits of bids and awarding contracts in lieu of only awarding contracts to the lowest bidder.

“The **Proposed Model State Legislation** below is offered as a possible approach to allowing for the incorporation and use of advanced technologies, materials, and construction methods in infrastructure projects.

“The model state legislation is drawn from the ‘*United Facilities Guide Specifications*,’ UFGS-09 97 23.17, prepared by the Naval Facilities Engineering Command (or NAVFAC), **which is in current use** by NAVFAC, the United States Army Corps of Engineers, Air Force Civil Engineer Center, and National Aeronautics and Space Administration.”

Optional Model State Legislation – THUD #2

The language under the **Optional Federal Guidance to States** above may be used as a starting place in drafting State legislation to incorporate and allow for the use of advanced



technologies, materials, and construction methods in the State's infrastructure construction and repair projects.

The outline below which is drawn from the *'United Facilities Guide Specifications,' UFGS-09 97 23.17*, prepared by the Naval Facilities Engineering Command (or NAVFAC), also may be used as a guide to the State's requirements and procedures for the use of advanced technologies, materials, and construction methods in lieu of or in combination with the State's infrastructure construction and repair specifications:

1.1 PRE-CONSTRUCTION REQUIREMENTS

1.1.1 Preconstruction Submittals

- 1.1.1.1 Type of project and Project Location
- 1.1.1.2 Type of Technologies, Materials, and/or Construction Methods Proposed for Use in Lieu of Current Construction and Repair Specifications
- 1.1.1.3 List of Proposed Subcontractors
- 1.1.1.4 List of Proposed Products
- 1.1.1.5 Health and Safety Plan
- 1.1.1.6 Testing Procedures and Equipment
- 1.1.1.7 Environmental Protection Plan

1.1.2 Shop Drawings [as appropriate]:

- 1.1.2.1 Application Areas
- 1.1.2.2 Repair Areas (if applicable)
- 1.1.2.3 Testing Locations
- 1.1.2.4 Installation Locations and Installation Details

1.1.3 Product Data

- 1.1.3.1 Manufacturer's Product Description
- 1.1.3.2 Manufacturer's Storage and Handling Instructions

1.1.4 Test Reports

- 1.1.4.1 Advanced Technology, Material, and/or Construction Method Selection and Use Plan
- 1.1.4.2 Pre-Project Test Locations, Methods, Tools
- 1.1.4.3 Daily Checklists
- 1.1.4.4 Final Acceptance Test Report and Maintenance Test Procedure

1.1.5 Certificates

- 1.1.5.1 Manufacturer's Certificate
- 1.1.5.2 Contractor's Certificate
- 1.1.5.3 Evidence of Acceptable Variation Certificate



1.1.6 Manufacturer's Instructions

- 1.1.6.1 Technical Guidelines
- 1.1.6.2 Safety Data Sheets (SDS)
- 1.1.6.3 Special Application Procedures for Extreme Temperatures

1.1.7 Closeout Submittals

- 1.1.7.1 Final acceptance Test Report

1.2 QUALITY ASSURANCE

1.2.1 Qualifications of Contractors, Subcontractors, and Vendors

Submit certificates/certifications documenting prior experience in use of the advanced technology/material, including test methods to be performed herein, and qualification statements for review and approval by the State for the contractors, subcontractors, and vendors that will be involved in project execution.

1.2.2 Minimum Performance Requirements.

Submit Manufacturer's certificate and/or adequate documentation of the following, as appropriate:

- 1.2.2.1 *Performance Characteristics* in Comparison to Using Standard Construction/Repair Methods
- 1.2.2.2 *Cost of Construction/Repair* in Comparison to Standard Construction/Repair Methods to Meet or Exceed Same Standards
- 1.2.2.3 *Time of Construction or Repair* in Comparison to Standard Construction/Repair Methods to Meet or Exceed Same Standards
- 1.2.2.4 *Structure Longevity* in Comparison to Standard Construction/Repair Methods to Meet or Exceed Same Standards
- 1.2.2.5 *Corrosion Rate Reduction* of Reinforcing Steel
- 1.2.2.6 *Water Penetration Rate Reduction* of Concrete
- 1.2.2.7 *Pullout Strength Increase of Concrete*
- 1.2.2.8 *Other Benefits* Compared to Standard Construction/Repair Methods [ability to use recycled materials and balanced mix designs, reduction of greenhouse gas emissions, etc.]

1.2.3 Evidence of Acceptable Variation Certificate

Submit documentation of any variations from this section that certifies that the variation will not prevent the advanced technology, material, or construction method from achieving the minimum performance requirements.

1.3 REGULATORY REQUIREMENTS

1.3.1 Environmental Protection



Submit an environmental protection plan for the use of the advanced technology, material, and/or construction method that addresses all requirements of the Safety Data Sheets for the products utilized and assures compliance with all applicable regulations.

1.4 DELIVERY, STORAGE, AND HANDLING

Store and handle products in accordance with the manufacturer's instructions. Submit manufacturer's storage and handling instructions as part of the product data submittal.

1.5 SAFETY METHODS

Comply with all applicable OSHA and local authority standards for personal protection, including the required record keeping and training. Submit compliance plan as part of the Health and Safety plan submittal.

1.6 ENVIRONMENTAL CONDITIONS

1.6.1 Weather and Substrate Conditions

Consider present and forecasted weather conditions for each structure prior to product use. The substrate temperature, air temperature, humidity and other environmental conditions must be within the limits recommended by the manufacturer for proper application. Document all relevant environmental conditions and include them in the Daily Checklist submittals.

1.7 EQUIPMENT, TOOLS, AND MACHINES

Stipulate that the methods, tools, and equipment approved by the manufacturer shall be used in incorporating advanced technologies, materials, and construction methods into state infrastructure construction and repair projects.

1.8 SEQUENCING AND SCHEDULING

1.8.1 Preparation of [Soil, Surfaces, etc.] Prior to Use of the Advanced Technology, Material, and/or Construction Method

1.8.2 Surface Preparation

1.8.3 Other Preparations

1.8.4 Pre-Application Testing

1.8.4.1 Testing Procedures and Equipment

Submit a list of all proposed testing procedures and test equipment within two weeks of the contract award.

1.8.4.2 Testing Procedure Approval

Testing procedures, test equipment, measurement techniques, and locations must be submitted to the Designer of Record for review and approval prior to testing.

1.8.4.3 Testing and Test Results Report



All test data and the test results must be submitted to the Designer of Record for review and approval prior to proceeding with use of the advanced technology, material, and/or construction method.

1.8.5 Advanced Technology, Material, and/or Construction Method Selection and Use Plan

Prepare and submit a specific plan for the use of the advanced technology, material, and/or construction method. Include the product selections, the purposes for the use of the advanced technology, material, and/or construction method, the project areas in which the advanced technology, material, and/or construction method will be used, the methods for its use and equipment required, the sequence and timing of each step required in the use of the advanced technology, material, and/or construction method, and the usage rates that are based on the pre-application testing results.

Include all pre-application testing data and analysis in the plan. Include shop drawings identifying the testing locations. Identify areas that require pre-project and post-project tests. Submit the Advanced Technology, Material, and/or Construction Method Selection and Use Plan for review by the Designer of Record.

1.8.6 Advanced Technology, Material, and/or Construction Method Use

Use advanced technology, material, and/or construction method in accordance with manufacturer’s specifications and the approved plan.

Monitor and record the quantity, methods, surface and sub-surface temperatures, and any other data or observations required by the plan.

Inspect the project areas in which the advanced technology, material, and/or construction method was used to ensure proper installation, application and use.

1.8.7 Post-Application Testing and Minimum Performance Requirements

Perform post-application testing a minimum of 60 days after completion of the construction or repair using the advanced technology/material.

Perform post-application testing utilizing the same instrumentation and test procedures at the same locations as those utilized during the pre-application testing.

Include the post-application testing results in the Final Acceptance Test Report.



The minimum acceptable performance criteria are included in paragraph
MINIMUM PERFORMANCE REQUIREMENTS.