

Calendar No. 240

116TH CONGRESS }
1st Session }

SENATE

{ REPORT
116-128

A BILL TO REQUIRE THE SECRETARY OF COMMERCE, ACTING THROUGH THE DIRECTOR OF THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY, TO HELP FACILITATE THE ADOPTION OF COMPOSITE TECHNOLOGY IN INFRASTRUCTURE IN THE UNITED STATES, AND FOR OTHER PURPOSES

R E P O R T

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND
TRANSPORTATION

ON

S. 384



SEPTEMBER 26, 2019.—Ordered to be printed

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SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED SIXTEENTH CONGRESS

FIRST SESSION

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Mr. WICKER, from the Committee on Commerce, Science, and Transportation, submitted the following

R E P O R T

[To accompany S. 384]

The Committee on Commerce, Science, and Transportation, to which was referred the bill (S. 384) to require the Secretary of Commerce, acting through the Director of the National Institute of Standards and Technology, to help facilitate the adoption of composite technology in infrastructure in the United States, and for other purposes, having considered the same, reports favorably thereon with an amendment (in the nature of a substitute) and recommends that the bill (as amended) do pass.

PURPOSE OF THE BILL

The purpose of S. 384, a bill to require the Secretary of Commerce, acting through the Director of the National Institute of Standards and Technology (NIST), to help facilitate the adoption of composite technology in infrastructure in the United States, and for other purposes, is to establish a data clearinghouse to gather and disseminate composite standards; work with stakeholders to facilitate the adoption of standards for composites; and conduct a pilot program to assess the feasibility and advisability of adopting composites in sustainable infrastructure.

BACKGROUND AND NEEDS

Composites are materials made when two or more materials with significantly different physical properties are combined. In a composite material, the different material components retain their own physical properties in the mixture. Common examples of composites are plywood, fiberglass, and reinforced concrete. Composite

products produced in the United States offer durable, sustainable, and cost-effective solutions in a variety of infrastructure applications as diverse as dams, levees, bridges, highways, railroads, harbors, utility poles, and buildings. In February 2017, designers, manufacturers, researchers, and end-users of composite materials met to assemble a roadmap for addressing barriers to adoption of composite technology in infrastructure.¹ The ideas advanced at the meeting were later compiled in a December 20, 2017, report issued by NIST entitled “Road Mapping Workshop Report on Overcoming Barriers to Adoption of Composites in Sustainable Infrastructure.” The report included recommendations for facilitating wider adoption of composite technology that is potentially more reliable, durable, and cost-effective than current solutions.

SUMMARY OF PROVISIONS

S. 384 would direct NIST to do the following:

- Establish a data clearinghouse to gather and disseminate composite standards, design criteria, tools, and guidelines.
- Work with stakeholders to facilitate the adoption of standards for composites.
- Conduct a pilot program to assess the feasibility and advisability of adopting composites in sustainable infrastructure.

LEGISLATIVE HISTORY

S. 384 was introduced on February 7, 2019, by Senator Capito (for herself and Senator Peters) and was referred to the Committee on Commerce, Science, and Transportation of the Senate. On July 10, 2019, the Committee met in open Executive Session and, by voice vote, ordered S. 384 reported favorably with amendments. Senator Capito offered a first degree amendment to make technical changes, and Senator Markey offered a first degree amendment to identify environmental impacts and recyclability of composite materials.

In the 115th Congress, a similar bill, S. 3765, was introduced on December 18, 2018, by Senator Capito (for herself and Senator Peters) and was referred to the Committee on Commerce, Science, and Transportation of the Senate.

ESTIMATED COSTS

In accordance with paragraph 11(a) of rule XXVI of the Standing Rules of the Senate and section 403 of the Congressional Budget Act of 1974, the Committee provides the following cost estimate, prepared by the Congressional Budget Office:

¹NIST, “Road Mapping Workshop Report on Overcoming Barriers to Adoption of Composites in Sustainable Infrastructure,” December 20, 2017 (<https://www.nist.gov/publications/road-mapping-workshop-report-overcoming-barriers-adoption-composites-sustainable>).

S. 384, a bill to require the Secretary of Commerce, acting through the Director of the National Institute of Standards and Technology, to help facilitate the adoption of composite technology in infrastructure in the United States, and for other purposes			
As ordered reported by the Senate Committee on Commerce, Science, and Transportation on July 10, 2019			
By Fiscal Year, Millions of Dollars	2019	2019-2024	2019-2029
Direct Spending (Outlays)	0	0	0
Revenues	0	0	0
Deficit Effect	0	0	0
Spending Subject to Appropriation (Outlays)	0	50	not estimated
Statutory pay-as-you-go procedures apply?	No	Mandate Effects	
Increases on-budget deficits in any of the four consecutive 10-year periods beginning in 2030?	No	Contains intergovernmental mandate?	No
		Contains private-sector mandate?	No

S. 384 would require the National Institute of Standards and Technology (NIST, within the Department of Commerce) to implement recommendations from a report on the use of fiber-reinforced composite materials in infrastructure projects. The report recommends that NIST test the composites' durability and develop industry standards for their use in infrastructure projects; establish a clearinghouse for information on their design, manufacture, and use; and disseminate educational and training information to academia and private industry.¹

Using information from NIST, CBO expects the agency would complete most of that work by 2023. CBO estimates that NIST would need to hire 20 employees including scientists, engineers, and software developers at an average annual cost of \$240,000 per employee, totaling about \$22 million over the 2019–2024 period. CBO expects that research grants and contracting costs would total about \$6 million a year, or \$24 million over that same period. Finally, CBO estimates that materials and equipment would cost roughly \$4 million in the first few years. In total, and assuming appropriation of the estimated amounts, CBO estimates that implementing S. 384 would cost \$50 million over the 2019–2024 period.

The costs of the legislation (detailed in Table 1) fall within budget function 370 (commerce and housing credit).

TABLE 1.—ESTIMATED INCREASES IN SPENDING SUBJECT TO APPROPRIATION UNDER S. 384

	By fiscal year, millions of dollars—						
	2019	2020	2021	2022	2023	2024	2019–2024
Estimated Authorizations	0	13	13	12	12	0	50
Estimated Outlays	0	10	13	12	12	3	50

¹See Richard J. Sheridan and others, *Road Mapping Workshop Report on Overcoming Barriers to Adoption of Composites in Sustainable Infrastructure*, NIST SP–1218 (National Institute of Standards and Technology, December 2017), <https://go.usa.gov/xyJt7>.

The CBO staff contact for this estimate is David Hughes. The estimate was reviewed by H. Samuel Papenfuss, Deputy Assistant Director for Budget Analysis.

REGULATORY IMPACT STATEMENT

Because S. 384 does not create any new programs, the legislation will have no additional regulatory impact, and will result in no additional reporting requirements. The legislation will have no further effect on the number or types of individuals and businesses regulated, the economic impact of such regulation, the personal privacy of affected individuals, or the paperwork required from such individuals and businesses.

CONGRESSIONALLY DIRECTED SPENDING

In compliance with paragraph 4(b) of rule XLIV of the Standing Rules of the Senate, the Committee provides that no provisions contained in the bill, as reported, meet the definition of congressionally directed spending items under the rule.

SECTION-BY-SECTION ANALYSIS

Section 1. Facilitating the adoption of composite technology in infrastructure.

This section would direct NIST to implement recommendations in the report entitled “Road Mapping Workshop Report on Overcoming Barriers to Adoption of Composites in Sustainable Infrastructure.” This section would direct NIST to develop a design for a data clearinghouse that would gather and disseminate existing design criteria, tools, and standards for the use of composite technology in infrastructure, as well as develop methods evaluating appropriate use of composite materials, in consultation with several stakeholders involved with research and testing of composite materials. In developing the clearinghouse, NIST should consider ways to evaluate the environmental impacts of composites and the recyclability of such materials. This bill also would direct NIST to conduct a pilot program to evaluate the feasibility and advisability of adopting composites in sustainable infrastructure.

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, the Committee states that the bill as reported would make no change to existing law.