

BUILDING BRIDGES FROM BIDEN'S AMERICAN JOBS PLAN TO THE R&D TAX CREDIT

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President Biden's long-awaited American Jobs Plan spending proposal provides U.S. architectural, engineering, and construction firms a potentially very desirable side benefit — the ability to claim the research and development tax credit. The opportunity to claim this tax incentive needs to be evaluated carefully.

Introduction

Architecture, Engineering, and Construction (AEC) companies may have scored a major win in more ways than one with the introduction of President Biden's long-awaited \$2.25 trillion American Jobs Plan spending proposal. The plan aims to create more jobs, improve infrastructure, and position the United States to be continually competitive in the modern world.

The proposal lays out a budget that includes approximately \$1 trillion for infrastructure including, transportation infrastructure, building and utilities, worker training, research and development, and domestic manufacturing initiatives. This represents a huge investment into activities such as improving transportation infrastructure, making U.S. infrastructure more resilient to withstand climate disasters, building commercial homes and commercial buildings, and using more sustainable and innovative materials, including cleaner steel and cement, and component parts. This plan could result in significant contracts for AEC companies.

Additionally, tackling these lofty goals and infrastructure challenges may involve AEC

companies designing, developing, and uncovering new solutions that could qualify for the research and development (R&D) tax credit. Among these challenges are the following:

- How to build safer and more resilient roads and bridges?
- What new engineering techniques and/or innovative materials can be utilized to meet more stringent strength and stability goals for the transportation infrastructure?
- How to design and build more sustainable and high-performance buildings with reduced carbon emissions and reduced or near zero net energy for heating and cooling?
- What is the optimal massing, orientation, and building envelope?
- How to build more flexible school and office space solutions?
- How to develop lightweight modular and pre-fabricated construction solutions to rapidly deploy new buildings?

Below are a few examples of how AEC companies have responded to societal changes and leveraged opportunities to innovate within the industry.

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Sustainability

There is an increasing demand for sustainability to reduce the carbon footprint throughout every stage of the construction process. While designing sustainable buildings is important, companies must also take into consideration ensuring sustainability during construction, designing buildings for re-purposing, and examining the materials used. From 2006 to 2018, the number of LEED-certified projects in the United States increased from 296 to 67,200. Sustainability can be one of the most challenging aspects of the construction industry.

Designing buildings that can be reconfigured to meet changing needs can reduce the amount of waste going to landfills, as well as the overall consumption of raw materials. Circular design eliminates the pattern of design, build, use, and dispose and replaces it with a cycle of designing out waste, keeping products and materials in use, and regenerating natural systems.

When constructing new buildings, or renovating old ones, it is important to consider the use of materials that can be sustainable and recycled after use. Choosing building materials that are long-lasting and can serve multiple purposes lowers the cost of renovating buildings over time and ensures consistent performance.

One popular building material is structural timber, also known as mass timber, which involves sticking pieces of soft wood such as pine, spruce, fir, birch, or ash, together to form larger pieces. Mass timber has the potential to significantly reduce embodied carbon in the built environment. The most common form of mass timber is cross-laminated timber (CLT), which involves gluing boards on top of one another in layers, crosswise, to create large slabs up to a foot thick and typically 10-foot-long by 40-foot-wide. Slabs of wood this large can match or exceed the performance of concrete and steel. CLT can be used to make entire buildings including floors, walls, and ceilings. Because this is a newer building material in the U.S., extra work in designing and testing is required.

Concrete, composed of sand, cement, aggregate, and water mixed with chemicals, is one of the most predominant building materials used in the construction industry. However, cement production is the largest source of non-energy-related industrial carbon emissions. A team at the University of Washington conducted an analysis comparing a CLT building to a reinforced concrete building with similar features.

The study concluded that the CLT building represented a 26.5% reduction in global warming potential compared to the concrete building.

Produced annually at the giga-metric ton level, cement serves not only as the adhesive that binds concrete together but also the glue that holds together much of the modern world. As a result, cement is critical in the construction of the modern world—bridges, dams, skyscrapers, and infrastructure. Unfortunately, worldwide manufacture of this vitally important material releases some 8% of global anthropogenic carbon dioxide emissions. Consequently, researchers are developing alternative cement formulations and procedures that reduce these greenhouse gas emissions. Some of these R&D approaches are now being commercialized, including using waste products from other industries during manufacturing and non-standard cement components that do not undergo carbon dioxide emitting chemical reactions during manufacturing/construction projects.

Manufacturers are already implementing several changes. For example, capitalizing on engineering advances, cement manufacturers have improved the energy efficiency of kilns used for heating and processing the starting

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materials from which cement is made. Improving energy efficiency decreases fuel consumption, which reduces carbon dioxide emissions. Another innovation has cement manufacturers reducing carbon dioxide emissions through carbon capturing technologies. A third approach to tackling concrete's carbon dioxide issue is to reconfigure cement with similar behaving materials that release lower carbon dioxide amounts than do the traditional manufacturing approaches. Another innovative idea being worked on, is to find materials that will chemically allow the manufacturers to use a smaller amount of the carbon dioxide generating components.

Currently the construction industry is making a profound impact on the environment, and so it is extremely important that companies work towards maximizing the positive benefits while minimizing the negative components to ensure both the materials and manu-

facturing processes lead to sustainability in construction.

BIM and technology

As companies were forced to shut down their sites due to COVID and remote working became more prevalent, construction companies were forced to adapt and adopt a new way of working and communicating with their remote teams. This resulted in a greater reliance on project management tools and teams, as well as adequate construction software. Replacing manual paper-based documents with digital construction forms and automated workflows, allows teams to collaborate and manage control over field documents, while eliminating redundancies and streamlining inefficient processes.

construction project. Digital technologies, including BIM, make it possible for teams to deliver successful projects on time and within budget, while avoiding unnecessary delays and reworks.

Modular construction

Modular construction is a process in which a building is constructed off-site, under controlled plant conditions, using the same materials and designing to the same codes and standards as conventionally built facilities – but in about half the time. Companies are developing custom prefab construction solutions that are powered by technology and advanced manufacturing. Walls, doors, integrated technology, power, and networks are all rapidly designed and prefabricated with extreme precision and then shipped to the site for installation.

Modular construction can save a substantial amount of time during the construction process by enabling construction and foundation sitework to be done simultaneously. Additionally, it can significantly reduce onsite construction waste.

There are a few disruptors in the AEC industry that are developing advanced capabilities to design mid-rise and high-rise buildings using modules. These companies are developing solutions to address challenges related to building core and structural integrity, integrating window systems and balconies, integrating mechanical electrical and plumbing solutions, and complex building geometries.

Once it is established that activities qualify for the R&D tax credit, a thorough analysis must be performed to determine that the taxpayer has assumed the financial risk associated with, and will have substantial rights to, the products or processes that are developed through the work completed.

BIM (Building Information Modeling) integration plays an integral role in the success of the AEC industry. BIM is a digital representation of physical and functional characteristics of a facility in 3D, 4D (time schedules), 5D (cost estimations), and 6D (operations and facility management). Construction projects are fast paced, and a single day's delay can result in huge cost overruns; BIM assists with more accurate time and cost estimations. The technology improves collaborative efforts, communication, and validates the viability of the design before construction begins, saving money that would otherwise be lost in numerous change orders.

As evident during the pandemic when gathering all the necessary input from teams together in an office may not be possible, collaboration in a common data environment is crucial. Through BIM all teams are able to communicate effectively wherever they are located and make changes and comments in real time before contractors lay the foundation. Because of this, BIM saves time by eliminating reworks and redesigns.

Being able to increase visibility across the supply chain, even when working remotely, is a challenging but critical aspect in every con-

What is the R&D tax credit?

The federal R&D tax credit under Internal Revenue Code (IRC) Section 41 was first introduced by Congress in 1981. The purpose of the credit is to incentivize U.S. companies to keep and increase spending on research and development within the U.S. The R&D tax credit is available to businesses that uncover new, improved, or technologically advanced products, processes, principles, methodologies, or materials.

The R&D tax credit can lower a taxpayer's effective tax rate and potentially generate additional cash flow to fund future development activities.

The R&D tax credit provides for a dollar-for-dollar reduction to a company's tax liability, making it much more valuable than a tax deduction. The credit can provide a benefit for as much as 10% of qualified research expenses, depending on the company's history and the

calculation methodology used. Taxpayers that currently have a federal income tax liability, and those that anticipate having one in the foreseeable future, stand to benefit as federal R&D tax credits can be carried forward for up to 20 years.

How does the R&D tax credit work?

The R&D tax credit is available to taxpayers who incur incremental expenses for qualified research activities ("QRAs") conducted within the U.S. The credit is comprised primarily of the following qualified research expenses ("QREs"):

- Internal wages paid to employees for qualified services; this includes those individuals directly performing the experimentation as well as those individuals directly supporting and supervising these individuals.
- Supplies used and consumed in the R&D process or used to build prototypes or pilot models.
- Contract research expenses (when someone other than an employee of the taxpayer performs a QRA on behalf of the taxpayer, regardless of the success of the research). This type of expense is allowed at 65% of the actual cost incurred by the taxpayer. A thorough analysis must be performed to confirm whether the tax-

payer has assumed financial risk and will have substantial rights to products and processes developed through the work completed by the third party.

For activities to qualify for the research credit, the taxpayer must be able to show they meet each of the following four tests:

- The activities must rely on a hard science, such as engineering, computer science, biological science, or physical science.
- The activities must relate to the design or development of new or improved functionality, performance, reliability, or quality features of a business component – a product or process used in the taxpayer's trade.
- Technological uncertainty must exist at the outset of the activities. Uncertainty exists if the information available at the outset of the project does not establish the capability or methodology for developing or improving the business component, or the appropriate design of the business component.
- A process of experimentation (e.g., an iterative testing process) must be conducted to eliminate the technological uncertainty.

Once it is established that the activities qualify, a thorough analysis must be performed to determine that the taxpayer has assumed the financial risk associated with, and will have sub-

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stantial rights to, the products or processes that are developed through the work completed.

The issue of contracting and funded research

Generally, the R&D tax credit is not available to taxpayers for research activity to the extent that such research is considered “funded” either by a grant, contract, or other arrangement.¹ Congress enacted the funding limitation to restrict research credit benefits to a single taxpayer in a given transaction. That said, the limitation is imperfect in that two parties often claim the same costs as QREs. Alternatively, in some transactions, no party is allowed to claim the expenditures.

The Section 41 regulations provide a major exception to the funding exclusion.² Under the regulations, research performed by a taxpayer on behalf of another is not funded if both the taxpayer retains “substantial rights” in the research and the payment to the taxpayer is contingent on the success of the research, meaning the taxpayer is “at risk” of bearing the research costs upon failure of the project.

There are two broad categories of contracts that will help make the determination regarding financial risk according to IRS guidance – fixed price contracts and cost reimbursement

parties as having some financial risk. In these situations, and subject to contract language, both entities would be entitled to claim a share of the qualifying expense. An example of such a contract type would be a cost-plus contract limited by a not-to-exceed clause.

Amounts paid to a taxpayer performing QRAs under an agreement that is contingent on the success of the research are not treated as funding of the research. According to *Fairchild Indus. Inc.*,³ the determination of whether a taxpayer is at risk turns on which party bears the research costs upon failure of the project. When retention of payments to the party performing QRAs is contingent on performance, such as the successful design or development of a new product or process, that taxpayer bears the risk of failure.

In addition to having financial risk, to be able to claim research expenses, the taxpayer needs to maintain significant intellectual property rights in the product or technology being developed. This might include the right to sell the identical product to another customer or to utilize the technology, techniques, and methods developed going forward.

Although the Section 41 regulations do not define substantial rights, the regulations state that a taxpayer does not retain substantial

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(also known as cost plus) contracts. Most basically, a company that contracts to design and develop a new or improved product that meets new requirements is said to have financial risk if they are obligated to successfully complete the project for a predetermined fixed price compensation amount. Alternatively, a company that undertakes the same project but gets reimbursed for all of its expenses, regardless of its ability to successfully complete the project within a specific timeframe, would not be said to have financial risk.

There are often variations within these broad contract type categories that will deem both

rights when the party for whom the research is performed has the exclusive right to exploit the results of the research and the taxpayer must pay for the right to use the research results.⁴ In *Lockheed Martin Corp.*,⁵ the court held that the right to use research results without paying for such right, even if not an exclusive right, is substantial. Still, if a taxpayer must pay a royalty to obtain a non-exclusive license to use the research results, that taxpayer does not retain substantial rights in the research. Thus, so long as exclusive rights are not vested in one party, both parties can share substantial rights in the research results.

As discussed earlier, costs that qualify for the credit include wages of employees involved in developing new or improved products or processes, supplies used or consumed during the research process, and 65% of fees paid to

¹ Section 41(d)(4)(H).

² Reg. 1.41-4A(d).

³ *Fairchild Indus. Inc.*, 71 F.3d 868 (Fed. Cir., 1995).

⁴ Reg. 1.41-4A(d)(2).

⁵ *Lockheed Martin Corp.*, 210 F.3d 1366 (Fed. Cir., 2000).

outside contractors who provide qualifying R&D services on behalf of the taxpayer. It is critical that taxpayers seeking to claim R&D tax credits develop a methodology for identifying, quantifying, and documenting project costs that may be eligible.

Importance of documentation

Assembling appropriate documentation may require changes to the company's record-keeping processes because the burden of proof regarding all R&D expenses claimed is on the taxpayer. The company must maintain documentation to illustrate nexus between qualifying research expenses and qualifying research activities. According to the IRS Audit Techniques Guide for the R&D credit, the documentation must be contemporaneous, meaning that it was created in the ordinary course of conducting the qualifying research activities. Furthermore, a careful analysis should take place to evaluate whether expenses associated with eligible activities performed in the company outside of the R&D department may have been missed and can be included in the R&D tax credit calculation. This is accomplished by interviewing personnel directly involved in R&D or those who are in support or supervision of R&D efforts.

In *Union Carbide Corp.*,⁶ the Tax Court applied the "Cohan rule" to hold that a taxpayer can rely on reasonable estimates through oral testimony when actual expenditures are not available. Specifically, employees could be interviewed to identify completed research projects, the work performed, and the amount of time spent by each employee. This court opinion is favorable to taxpayers in its application of the type of evidence needed to support a research credit claim.

For taxpayers without detailed time records, reasonable estimates based on the longstanding rule in *Cohan*⁷ may be allowed. However, it is still always preferential to keep contemporaneous documentation in support of research activities.⁸

Populous Holdings, Inc.

In *Populous Holdings, Inc.*,⁹ the Tax Court's decision reaffirmed that AEC industry companies contracted by developers or other clients are eligible to claim R&D tax credits for research activities they perform. This has long been a contentious issue between the IRS and AEC industry taxpayers. Populous Holdings, an architectural design

services company, had claimed R&D tax credits on its 2010 and 2011 tax returns totaling nearly \$300,000. The IRS disallowed these claims, asserting that the research activities were funded by Populous clients who contracted with the company for its services.¹⁰

Contracted research is considered funded and ineligible for R&D credits unless: (1) payment to the contractor is contingent on the success of the research, and (2) the contractor retains substantial rights in the research. Similar to the *Geosyntec* case of 2015,¹¹ Populous and the IRS agreed to limit their analysis to the funding issue, stipulating the qualifying nature of the underlying research activities. The parties agreed to review five of the more than 100 contracts during the timeframe of the claimed

A company must maintain documentation to illustrate nexus between qualifying research expenses and qualifying research activities.

credits. All five contracts selected for review were fixed-price type arrangements, where Populous was obligated to meet all client requirements for a lump sum or fixed fee. Any additional cost overruns necessary to meet project requirements would have to be absorbed by Populous.

In the decision, the Tax Court referred to the earlier *Geosyntec* ruling, which concluded in general that fixed-price contracts are inherently risky to the contractor and are therefore not considered funded. The Tax Court found that in each of the five fixed-price contracts, payments to Populous were indeed contingent on the success of the research. Other clauses from these contracts also favored Populous, such as the client having the right to review and approve Populous' designs, the client having the right to dispute invoices, and Populous bearing the cost of design revisions.

On the rights issue, the Tax Court relied on the decades-old *Lockheed Martin* case,¹² which

⁶ *Union Carbide Corp.*, TCM 2009-50.

⁷ *Cohan*, 39 F.2d 540 (CA-2, 1930).

⁸ Holtzman, "Improving Packaging Design ROI by Taking Advantage of the R&D Tax Credit" (60 DTR J-1, 3/29/16).

⁹ *Populous Holdings, Inc.*, Tax Court order, 12/6/2019.

¹⁰ Holtzman, "U.S. Tax Court Reaffirms Architecture, Engineering and Construction Industry's Right to Claim R&D Tax Credits" (7/7/20).

¹¹ *Geosyntec Consultants, Inc.*, 115 AFTR2d 2015-644 (CA-11, 2015).

¹² *Lockheed Martin Corporation*, 85 AFTR2d 2000-1495 (Fed. Cir. 2000).

established that a contractor retains substantial rights in the research performed for a third party, so long as the contractor retains the rights to use the research results in his or her trade or business, even if such rights are not exclusive. None of the contracts under review by the parties included provisions prohibiting Populous from using the results of its research, nor did they include provisions requiring Populous to pay for the right to use the results of its research. Thus, it was held by the Tax Court that Populous retained significant intellectual property rights to the research performed.

Conclusion

President Biden's long-awaited \$2.25 trillion American Jobs Plan spending proposal provides U.S. architectural, engineering, and construction firms a potentially very desirable side benefit — the ability to claim the research and development

tax credit. The opportunity to claim this tax incentive needs to be evaluated carefully. If claimed, the expenditure needs to be carefully documented, clearly illustrating how the requirements of Section 41 are satisfied. Detailed quantitative and qualitative documentation should be maintained, rights and risks need to be evaluated, and nexus needs to be established.

Ultimately, the proposal lays out a budget that includes approximately \$1 trillion for infrastructure, including: transportation infrastructure, building and utilities, worker training, research and development, and domestic manufacturing initiatives, and as a result AEC firms should consider building sustainable bridges to claiming research credit benefits if they have not already done so.

As of the date of completion of this article, Biden's infrastructure bill received overwhelming Senate support and approval with a 69-30 vote. ■