

## How Construction Managers Optimize Projects for Environmental Efficiency

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The construction industry needs to improve its sustainability. Climate change continues to wreak havoc on weather, habitats, and public health. Better building practices can help lead the way to positive changes across the globe. These practices start with construction managers.

As a manager, it's your responsibility to optimize projects for environmental efficiency by choosing suitable materials, updating training, and improving productivity on a construction site.

### The Battle Against Climate Change

Carbon emissions from the construction industry are at an [all-time high](#). The world will always need infrastructure, but its tools, materials, and building processes damage the planet. Emissions have a greenhouse gas effect that can cause extreme weather events, dirty water, air pollution, drought, and rising sea levels.

Construction managers are at the forefront of making the changes necessary to save the world while producing quality buildings, roads, bridges, and other projects.

### Training

You can't expect your workforce to implement efficient building practices without teaching them how. Many



construction workers spent their entire careers with the same machines and techniques. It's important to help them feel comfortable with new ones.

Focus on the purpose behind each change so they are more willing to adjust their practices. Then, thoroughly explain how to go about using new materials, processes, or machinery. Construction is one of the most dangerous professions, thanks to onsite accidents. When employees feel confident in their abilities, they can more easily focus on the task at hand, helping to prevent incidents.

Lastly, offer real-life examples of what you're starting, citing successes while reviewing other companies' obstacles. Seeing real scenarios can help them trust the new strategies.

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## Materials

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The right building materials can significantly cut your company's emissions. The most efficient materials have as little carbon output as possible in their production and use. Since they cost less to produce, they could save you money.

### Bamboo

It's hard to investigate better construction materials without seeing bamboo. That's because it's strong, flexible, and highly sustainable. Bamboo takes little processing and [regrows quickly on the same plant](#), making its production nearly emissions-free.

As it grows, the grass absorbs more carbon from the air than trees. Bamboo is versatile and works well as roofs and support structures.

### Reclaimed Wood

Lumber remains one of the most popular building materials, but the climate crisis makes deforestation irresponsible. The transportation and processing of wood to lumber also releases harmful emissions.

Reclaimed wood is an excellent solution for lumber that isn't in use anymore but is still perfectly capable of being used in new structures. Using it prevents the need for new lumber and keeps it from taking up landfill space.

### Precast Concrete

Precast concrete is factory-made to exact measurements in slabs, reducing the emissions used to produce traditional concrete. It's incredibly durable, especially in climates that face low temperatures. Since it comes in slabs, builders can fit them together in many forms, including stairs, ceilings, garages, and bridges.

There's evidence that using precast concrete can [save billions of emissions](#) when producing and using traditional concrete.

### Adobe

Adobe brick is a centuries-old building technique making a comeback. It uses natural materials like clay and straw to produce sturdy, insulating bricks. No carbon is traditionally needed to produce the material, and they are easy to stack and shape.

These bricks are often suitable replacements for lumber, which can help reduce deforestation. Like lumber, it's highly recyclable.

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## Equipment

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The right equipment goes a long way. Before a project, you can create, store, and edit plans via the internet of things (IoT). Doing so minimizes paper use at offices and on the jobsite. Blueprints are protected with lamination but they're no longer recyclable. Using IoT tech like virtual documents and cloud sharing can eliminate the need.

Cloud computing helps you quickly send information to workers who need it, and there is a lower risk of the plans getting destroyed by weather or lost by someone. It can help you avoid wasting time correcting mistakes and printing more copies. It also [saves time and money](#) by improving onsite communication.

Exhaust from heavy machinery can pollute the environment. Manufacturers are working to eliminate that problem through more sustainable options. Various companies now offer electric and hybrid machines that are often slimmer and easier to operate than older models. These include bulldozers, excavators, pile-driving rigs, and lifts. Making these purchases and training your workers with them can cut your team's emissions.

Smart sensors can [alert you to weather changes](#), which is helpful when scheduling workers for the most productive shifts. Pre-mapping a site with cameras allows you to superimpose your plans over the images. Walk through each one before arriving onsite to help avoid errors that lead to delays. You can place these outlines into virtual or augmented reality programs your workers can use to better prepare themselves for sites.

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## Philosophy

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The philosophies you adopt for your company can help it be more environmentally efficient.

You can adopt the ["just in time" \(JIT\)](#) ordering philosophy.

Instead of worrying about extra products, order solely what the client wants and the amount they want. If you need more materials, you can get more later instead of letting them sit unused, which increases carbon emissions.

You can introduce small sustainable practices for your workers that can make a big difference long-term. Creating in-office and onsite recycling programs can reduce the amount of plastic, cardboard, and paper that goes in the trash from lunchboxes, sketches, and more. A clean water source can encourage workers to bring reusable water bottles instead of single-use alternatives. Using gray water in toilets and hoses can prevent wasting clean, drinkable water.


The less time your company actively works on a site, the less emissions you'll produce. Optimizing your workers' time through site monitoring and innovative scheduling practices can help you avoid delays and maximize productivity.

Adjust shifts so trade partners don't have to wait for another to complete a task before they can begin theirs. Intelligent scheduling avoids wasting someone's time and can keep people safer. Schedule workers to be there when applicable but also get enough rest to stay alert and productive. Well-rested construction workers are [often much more productive](#), helping to finish a project faster than constantly being there.

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## Improving Environmental Efficiency

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The construction industry is essential, so it's vital to adapt to the needs of the globe. Managing your projects to optimize environmental efficiency can combat climate change and create a healthier planet. 



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## About the Author

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Rose Morrison is a freelance writer with a passion for sustainable building and innovative construction technologies. She has interviewed numerous industry professionals to gain insight into the current challenges facing the built industry and developing strategies for overcoming them.

Rose has over five years' experience writing in the industry and is the current managing editor of [Renovated.com](https://www.renovated.com). She also regularly contributes to other publications, such as NCCER, The Safety Mag, and Geospatial World. Follow Rose on [Twitter](#).

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