U.S. freight railroads play a critical role in the nation’s ability to build. For residential and commercial construction, railroads transport a variety of building materials, including steel, stone, non-metallic minerals, wood products and plastics. At the end of the residential construction process, a newly built dwelling is filled with durable consumer goods, such as household appliances — carried by rail. Railroads are also essential to one of the largest industries in the world, pulp and paper. Pulp and paper are most commonly processed to make everything from paper and food packaging to cardboard, bandages and LCD screens.

Here is a high-level overview of how freight railroads help transport building construction commodities:

**Gathering Raw Materials**
Raw materials such as cement and steel are gathered and processed into building materials.

**Moving to Suppliers**
Freight rail helps transport these building materials to distributors who then supply various construction sites across the nation.

**Building America**
Developers at the construction sites create the buildings that create American communities, from hospitals and schools to homes, skyscrapers and manufacturing plants.

**KEY TAKEAWAY**
Freight rail is the foundation for the nation’s construction industry, moving steel, cement, lumber and much more. Railroads’ lumber transport has become a bellwether for the American dream as rail carloads strongly correlate to housing starts. And with the paper and pulp industry one of the largest industries in the world, railroads are important to moving a commodity that protects our food and enables e-commerce.

**DATA POINTS**
In a typical year, freight railroads move around three million carloads of construction-related materials.
The movement of forest products like lumber has long been a bellwether for the American economy. Freight rail movements are largely dependent on the demand for the products railroads haul. Data indicates there is a strong correlation between freight rail lumber movements and housing starts, a critical indicator of economic strength.

America’s construction and lumber industries rely heavily on the country’s freight railroads to move lumber and wood products, including milled lumber and other construction panels such as wood particle, which is used to make furniture. These materials are essential to building America as they create everything from walls to doors, floors and roofs.

Lumber is typically transported on one of three types of cars — centerbeams, boxcars and bulkhead flatcars. Centerbeams (shown in the photo above) are preferred for lumber transport because they can be loaded and unloaded simultaneously from both sides, getting them back into service quicker. The standard 73’ centerbeam flatcar can carry about 200,000 lbs. or more and is also used to carry other construction materials, such as wallboard. In fact, one centerbeam rail car carries enough framing lumber to build about six homes.

In addition to lumber, railroads carry wood-related materials such as millwork, veneer and plywood. These materials are transported to manufacturers of paneling, furniture, trim, molding and flooring, and to distributors of building materials.
Steel

Data Point: In 2021, railroads hauled more than 560,000 carloads of steel and other primary metal products, 700,000 carloads of iron ore and approximately 250,000 carloads of scrap metal for producing new steel.

Railroads haul the iron ore, steel scrap and coke that are used to make steel, which is used to manufacture products like automobiles and appliances. Railroads also move steel slabs, concrete reinforcing bars and various kinds of pipe for use in construction projects.

Steel slabs produced at the steel mill are transported to fabricators in specialized flat cars (shown above). A loaded flat car is extremely heavy — carrying approximately 110 tons of steel per car. To maximize efficiency, railroads have engineered a lighter-weight flat car that can carry one additional steel slab per carload. Here’s a quick look at the overall steel transportation process:

1. **Starting With Scrap:** Scrap iron and steel are recovered while ore and other raw materials are mined.

2. **Transporting to Steel Mills:** Freight rail helps transport these raw inputs, which can include fluxing stone or lime, bentonite and coke produced from coal to steel mills for initial sorting and processing.

3. **Transporting to Foundries & Rolling Mills:** Steel mill products are transported to foundries and rolling mills for further refinement, forming and shaping, producing steel castings or manufacturing materials.

4. **Moving to Metal Forming:** The refined steel and steel-related commodities are moved to metal forming or stamping plants where final consumer and industrial goods such as motor vehicles, machinery and household appliances are manufactured.

5. **Delivered to End Users:** Final goods, such as motor vehicles, machinery, household appliances, consumer goods, bridges and more, are then transported to end users.
Stone, Sand & Gravel

Data Point: Analysts estimate that approximately 80% of U.S. crushed stone is used as a construction material, mainly for road construction, while 43% of U.S. sand and gravel is used for concrete aggregates.

Construction aggregates — like crushed stone, sand and gravel — are used in virtually every construction project, from roads to runways to buildings and sewer systems. These aggregates are found in nearly every state in the nation, making long-distance shipments of these materials unnecessary.

With one railcar carrying as much aggregate as four truck-trailers, freight rail is an environmentally friendly way to move aggregates. Freight railroads transport raw materials such as crushed stone, limestone, sand, gravel and gypsum from quarries or suppliers to cement and ready-mix concrete plants where cement and clay products materials such as brick and concrete are produced. These materials are then transported to construction distribution centers and construction sites where they serve a wide range of purposes, from cement used in building foundations to Gypsum used in wallboard production and clay-based ceramic tile used in floors and walls.

To ensure that this important commodity is moved efficiently and cost-effectively, railroads move aggregates from origin to destination in gondolas, which minimizes switching or reconfiguration of the train. While rail transport of aggregates is typically less than 300 miles, the importance of this commodity ensures that railroads will be in it for the long haul.

Bulk shipments of dry cement were among the first commodities to be hauled in covered hopper cars. Because of their sturdiness and ease of use, they are still the rail car of choice for cement transport today. Typically shipped in free-flowing, dry form, 110 tons of cement can be conveniently piped directly into a hopper car. These covered hopper cars have outlets on the bottom that allow for easy unloading when the cement reaches its destination. More efficient loading and unloading ensures the equipment is turned more quickly, lowering costs for both railroads and shippers.
Pulp & Paper

Data Point: The paper and pulp industry is one of the largest industries in the world, and the U.S. produces more than 70 million tons of paper and board every year. In a typical year, railroads move about 700,000 carloads of pulp and paper products.

From the southeast thicket of Georgia to the northwest forests of Oregon, freight rail moves American paper and pulp products that protect our food, keep us safe and enable e-commerce. Because of their size, weight, and diversity, trains are the ideal solution for getting pulp and paper products to market. Pulp is a fibrous material most commonly prepared from wood, cotton and grasses and processed to make paper, food packaging, cardboard and other plant-based products like sponges and bandages. Believe it or not, pulp is also used in the production of LCD screens and automobile tires.

Freight railroads have adapted to meet the changing needs of the American people; newsprint for newspapers now makes way for cardboard for e-commerce shipping. In fact, one of the most common uses for paper is paper-based packaging and boxes, which enable the nation’s emerging e-commerce market. Sturdy, lightweight, and customizable, paper-based packaging is a versatile and cost-effective way to transport, protect and preserve a wide variety of consumer goods.

Forest products, pulp and paper most often move in the classic boxcar (shown above). Boxcars are very versatile and can carry most kinds of freight. Because they are enclosed, boxcars are a great solution for loads that need protection from the weather. Boxcars can also protect contents from damage or temperature extremes during transit through insulation, refrigeration and cushioning.