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. And 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. Because of their size, weight, and diversity, trains are the ideal solution for getting this commodity to market. Pulp and paper is most commonly processed to make everything from paper and food packaging to cardboard, bandages and LCD screens.

**Lumber**

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. In a typical year, freight railroads move three million carloads of construction-related materials.

Lumber is typically transported on one of three types of cars — centerbeams, boxcars and bulkhead flatcars. Centerbeams are preferred for lumber transport because they can be loaded and unloaded simultaneously from both sides, allowing them back into service quicker.
The standard centerbeam flatcar can carry about 200,000 pounds or more and is also used to carry other construction materials, such as wallboard. One centerbeam railcar 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**

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 bar and various kinds of pipe for use in construction projects.

To meet the growing needs of manufacturing and construction industries, railroads engineered lighter weight flat cars that can carry more steel per carload. 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. Here’s a look at how railroads support the steel supply chain:

- Transportation of raw inputs, including iron ore, fluxing stone or lime, bentonite, coke produced from coal, and iron and steel scrap to steel mills for initial sorting and processing.
- Steel mills produce intermediate steel and steel-related commodities such as pig iron, steel wire, steel ingots, billets and slabs, construction shapes and steel sheets and plates.
- Steel mill products are transported to foundries and rolling mills for further refinement, forming and shaping, producing steel castings or manufacturing materials.
- 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.
- Final goods, such as motor vehicles, machinery and household appliances are then transported to end users.
**Stone, Sand & Gravel**

Construction aggregates — like crushed stone, sand and gravel — are found in nearly every state in the nation, making long distance shipments of these materials unnecessary. As a result, freight trains, which typically specialize in long-haul movement of freight, may seem like an unlikely transportation partner. However, over the past decade, efficiency enhancements and investments have allowed railroads to become serious players in the movement of rock. And because one railcar can carry as much aggregate as four truck-trailers, freight rail is an environmentally friendly way to move aggregates.

Aggregates are used in virtually every construction project, from roads to runways to buildings and sewer systems. 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.

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-base ceramic tile used in floors and walls.

Texas is the largest producer and consumer of aggregates among the 50 states. In fact, Texas’ growing population — particularly around Houston and Dallas, Ft. Worth — has driven the most demand for aggregates shipped by freight rail.

**Pulp & Paper**

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. 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. In a typical year, America’s freight railroads carry around 700,000 carloads of pulp and paper products all around the country.
How Specialized Freight Cars Deliver Construction Materials

Railroads use an impressive fleet of specialized rail cars to carry the diverse array of raw materials that are used by America’s construction industry. Designed to maximize efficiency, these cars help railroads deliver the materials customers need at a price that keeps them competitive.

- **Centerbeams**: Railroads move lumber, paper and other forest products in three different car types — centerbeams, boxcars and bulkhead flatcars. Centerbeams 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 6 homes.

- **Flat Cars**: Railroads haul all manner of steel, from the scrap and iron ore used at the steel mill to the steel slabs for manufacturing to finished products — like I-beams and various kinds of pipe — ready for use in construction projects. Steel slabs produced at the steel mill are transported to fabricators in specialized flat cars. A loaded flat car is extremely heavy — carrying approximately 110 tons of steel per car — but look nearly empty. To maximize efficiency, railroads have engineered a lighter weight flat car that can carry one additional steel slab per carload.

- **Small Covered Hopper Cars**: 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.

- **Gondola**: Don’t think of a dainty boat on an Italian waterway. Aggregates such as stone, sand are gravel are used as the foundation for highways, roadways and even railroads. To ensure that this important commodity is moved efficiently and cost-effectively, railroads move aggregates from origin to destination in dedicated trains, 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. Collectively, these products are used to build and support infrastructure, buildings and more. The foundation of modern American cities and towns — and the infrastructure we use to travel between them — wouldn’t exist without the materials carried by America’s freight railroads.