

# The New Steel. Backbone Industry In National Defense.



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## Land-based applications include:

- Abrams Tanks, where 187,000 tons of steel plate were consumed in the production of 8,500 tanks. There are 22 tons of plate in each Abrams tank.
- Light Armored Vehicles, where 30,000 tons of plate have been used, at the rate of eight tons per vehicle.
- The up-armored Humvee in use by the U.S. Army includes steel plating around the cab of the vehicle, offering improved protection against small arms fire and shrapnel. Steel plating underneath, is designed to survive up to eight pounds of explosives beneath the engine to four pounds in the cargo area.

## Sea-based applications include:

- Aircraft Carriers, each of which contains 50,000 tons of steel plate. The 10 carriers constructed in recent years consumed 500,000 tons of plate. The *USS John C. Stennis*, which was commissioned in 1995, used 60,000 tons of steel. The *USS Ronald Reagan*, which was commissioned in 2003, used 70,000 tons of steel.
- Submarines have consumed One million tons of steel plate. Trident Class subs require 10,000 tons each; 688/Virginia Class subs, 4,500 tons each; and Seawolf subs, 4,000 tons each.
- Guided Missile Destroyers (DDG) and Cruisers also require substantial quantities of steel plate. DDG ships use 3,500 tons each. The DDG 51 class incorporates all-steel construction. In 1975, the cruiser *USS Belknap* collided with the *USS John F. Kennedy*. *Belknap* suffered severe damage and casualties because of her aluminum superstructure. On the basis of that event, the decision was made that all future surface combatants would return to a steel superstructure.
- The Landing Platform Dock 17, San Antonio Class, is the latest class of amphibious force ship for the U.S. Navy. Each ship requires 12,000 tons of steel, and 12 ships are in the current program. The sixth ship, the *USS New York* will include 24 tons of steel salvaged from the wreckage of the World Trade Center as a memorial to those who lost their lives in New York on September 11, 2001.
- The *USS George H.W. Bush* (CVN 77) is the 10<sup>th</sup> and final Nimitz-class aircraft carrier. The ship contains 47,000 tons of structural steel. Delivery is scheduled for late 2008.
- The nuclear propulsion systems of carriers and submarines require nuclear-grade plate for reactor vessels, steam generators, and pressurizers.
- The steel for Nimitz-class aircraft carriers must be able to withstand the impact of a 37-ton, F-14 Tomcat aircraft landing on the deck at 150 miles an hour, shield a ship's crew from radiation generated by onboard nuclear reactors, and take the impact of shells and other projectiles.

The control cables on almost all aircraft, including fighter jets and military transport planes, are made from steel wire rope. These highly sophisticated machines could not remain in controlled flight without steel wire rope.

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The American Iron and Steel Institute, Ford Motor Company, and the U.S. Army collaborated on Project IMPACT (Improved Materials and Powertrain Architecture for 21<sup>st</sup> Century Trucks) to design the next-generation tactical vehicle. The IMPACT design makes optimum use of new-age steels to create lighter tactical vehicles while retaining performance, cost and safety.