THE NAVY

The Navy's Nimitz class nuclear powered aircraft carriers provide sustainable, independent forward presence and conventional deterrence in peacetime; operate as the cornerstone of joint/allied maritime expeditionary forces in times of crisis; operate and support aircraft attacks on enemies; and protect friendly forces and engage in sustained independent operations in war. Carriers support and operate aircraft that engage in attack on airborne, afloat, and ashore targets that threaten free use of the sea and engage in sustained operations in support of other forces. They are the largest warships in the world, are powered by two nuclear reactors, and carry 85 aircraft. The crew consists of a ship's company of 3,200 and an air wing of 2,480.

Twelve aircraft carriers form the centerpiece of US Naval global forward presence, deterrence, crisis response, and war fighting. In addition to their power-projection role, they serve as joint command platforms in the worldwide command-and-control network. The carrier air wing can destroy enemy aircraft, ships, submarines, and land targets, or lay mines hundreds of miles from the ship. Aircraft are used to conduct strikes, support land battles, protect the battle group or other friendly shipping, and implement a sea or air blockade. The air wing provides a visible presence to demonstrate American power and resolve in a crisis. The ship normally operates as the centerpiece of a carrier battle group commanded by a flag officer embarked in the carrier and consisting of four to six other ships, including guided missile cruisers, destroyers, frigates, replenishment ships and submarines.

The general arrangement of these ships is similar to the previous Kitty Hawk class with respect to flight deck, hangar, elevators, and island structure, e.g., the island is aft of the Number 1 and 2 elevators, with the Number 4 elevator on the port side aft of the angled deck and opposite the Number 3 elevator. The angled deck is canted to port at 9°3’. The general excellence of the Nimitz design precluded major changes to later ships in the class. CVN-71 and subsequent ships incorporate improved magazine protection; CVN-73 and later ships feature improved topside ballistic protection; CVN-74 and later ships are constructed with HSLA-100 steel.

The NIMITZ-class carriers are a floating airport, capable of launching as many as four aircraft a minute. The ship's four catapults and four arresting gear engines enable her to launch and recover aircraft rapidly and simultaneously. The ships carry seven different types of aircraft with a total complement of more than 80 planes. During flight operations, the flight deck of 4.5 acres is a scene of intense activity, with crew, aircraft and other equipment functioning as a well-rehearsed and carefully choreographed team to ensure both efficiency and safety. Four aircraft elevators, each the size of two average city lots, bring the aircraft to the flight deck from the hangars below. Small tractors spot the planes on the flight deck. Aviation fuel is pumped up from tanks below, and bombs and rockets are brought up from the magazines. Powerful steam catapults (affectionately known as "Fat Cats") can accelerate 37-ton jets from zero to a safe flight speed of up to 180 miles per hour in about 300 feet and in less than three seconds. The weight of each aircraft determines the amount of thrust provided by the catapult. When landing, pilots use a system of lenses to guide the aircraft "down the slope," the correct glide path for landing. The four arresting wires, each consisting of two-inch thick wire cables connected to hydraulic rams below decks, drag landing aircraft going as fast as 150 miles per hour to a stop in less than 400 feet. High in the island, seven stories above the flight deck, the "Air Boss" and his staff coordinate the entire operation, which is carefully monitored from the flight deck level as well as by the Captain on the ship's bridge. The various functions of the flight deck crew are identified by the colors they wear: yellow for officers and aircraft directors; purple for fuel handlers; green for catapult and arresting gear crews; blue for tractor drivers; brown for chock and chain runners; and red for crash and salvage teams and the ordnance handlers.

The NIMITZ-class self-defense measures include: missiles, guns, and electronic warfare. The NATO Sea Sparrow Missile System is comprised of two launchers with eight missiles each. Sea Sparrow is a radar-guided, short-to-medium range missile capable of engaging aircraft and cruise missiles. NIMITZ-class also has Close-In Weapon System mounts for short range defense against aircraft or missiles. Each mount has its own search and track radar, and a six-barrel, 20-millimeter Gatling gun capable of firing 3,000 rounds per minute

The carrier's two nuclear reactors give her virtually unlimited range and endurance and a top speed in excess of 30 knots. Eight steam turbine generators each produce 8,000 kilowatts of electrical power, enough to serve a small city. The ship has enough electrical generating power to supply electricity to a city of 100,000. The ship normally carries enough food and supplies to operate for 90 days. Four distilling units enable NIMITZ-class engineers to make over 400,000 gallons of fresh water from seawater a day, for use by the propulsion plants, catapults and crew. The ship carries approximately 3 million gallons of fuel for her aircraft and escorts, and enough weapons and stores for extended operations without replenishment. These ships also have extensive repair capabilities, including a fully equipped Aircraft Intermediate Maintenance Department, a micro-miniature electronics repair shop, and numerous ship repair shops. Keeping a NIMITZ-class carrier ready at all times requires repair shops to maintain machinery and aircraft, heavy duty tailor shops to repair parachutes and other survival gear, and electronic ships that keep communication, navigation and avionics equipment in good condition. NIMITZ-class carriers boast all the amenities that would be found in any American city with a comparable population, including a post office with its own ZIP code, TV and radio stations, a newspaper, a fire department, a library, a hospital, a general store, two barbershops and much more.