

## Engineering DVD's

The Engineering library has a variety of DVD's exploring engineering ingenuity, design, production, history (both successful and disastrous), and environmental issues. The DVD's are located at the circulation desk and are available for 3-day check out. Please bring in the call number - listed below - for the DVD you would like. The library also provides portable DVD players for viewing within the library.

### MODERN MARVELS

This popular History channel series reveals the stories behind familiar tools and material like steel, metal, earthmovers and cranes, as well as the impressive items they have been used to create, such as the Grand Coulee dam, bullet trains, and the Golden Gate bridge.

#### **America's highways**

The history and impact of highways in the US, from the first in 1912, lined with rock and spearheaded by a headlight manufacturer trying to promote private car use, through Eisenhower's plan for an interstate highway for national defense, an effort that was finally completed in 1984.

**DVD 3349**

#### **American Steel: Built to Last**

A look at steel and how its wide and impressive use is entwined with American history and image.

**DVD 3533**

#### **Apollo 13**

A documentary of the famous, movie-inspiring space mission that was saved from disaster by urgent ground and space teamwork at NASA.

**DVD 3892**

#### **Army Corps of Engineers**

The story of the sometimes controversial group of military and civilian engineers and scientists that has been building transformative projects at home and abroad, in peace and in war, for over 200 years.

**DVD 3348**

#### **Bridges**

A fascinating history of bridges, from the magnificent aqueducts built by the Roman empire, to the record breaking suspension bridge recently finished in Japan, with a look at other famous bridges (London, Sydney Harbor, Golden Gate) along the way.

**DVD 3886**

#### **Bullet Trains**

A showcase of ultra-high-speed train travel in Japan, the American northeast and Europe, with trains that can rival the convenience of air travel, plus a forecast of even faster trains that use magnetic levitation.

**DVD 3889**

#### **Cranes**

A documentary on cranes, simple and complex, and what use of them can accomplish, from building the pyramids in ancient Egypt to fixing the exterior of the space station during travel.

**DVD 3345**

#### **Earth Movers: The Power to Move Mountains**

An exploration of heavy, powerful equipment used currently for construction of large projects, with a history of the biggest names in the field, including John Deere and Caterpillar.

**DVD 3888**

#### **Golden Gate Bridge**

A history of what is arguably America's most famous bridge. The bridge was long thought doomed to failure because it spans a bay seemingly too wide and turbulent. This documentary contains footage of the spectacular bridge's construction.

**DVD 3529**

#### **Grand Coulee Dam**

The story of construction of the Columbia river's massive dam in Washington state - the world's largest. The project started during the Great Depression and encountered many problems, provoking much engineering ingenuity. This documentary shows rare footage of the dam's construction.

**DVD 3891**

#### **The Great Bridge: 8 miles of steel**

The "Great Bridge" in the title refers to the Oakland Bay Bridge, a bridge which may be overshadowed by the fame of its sister bridge, the Golden gate, but is by no means overshadowed in terms of structure: the Oakland Bay bridge is in itself spectacular, and was once proclaimed one of the seven engineering wonders of the world. Footage of original construction is included, as is footage of the construction to fix damage incurred in the 1989 San Francisco earthquake.

**DVD 3527**

#### **Hadrian's Wall**

A look at the rich history behind this 74-mile marker of the Roman empire, which has survived mysteriously well for thousands of years in Northern England and continues to provide researchers with historical and engineering insight.

**DVD 3890**

#### **Ice Breakers**

Ice Breakers are specialized ships used to cut through large slabs of ice. This documentary explores ice breakers in current use and details how these ships have revolutionized marine transport.

**DVD 3893**

### **Lake Ponchartrain Causeway**

A look at the history and future of the busy and at times besieged 24-mile bridge that connects New Orleans to the rest of Louisiana.

**DVD 3530**

### **Metal**

An exploration of metals, from the first bronze tools to new metallic materials being designed by molecular alteration.

**DVD 3531**

### **Niagara Power**

The Niagara power station - down river from the famous falls - was the first to harness the power of flowing water and transform it into electricity for wide distribution. This documentary explains hydroelectric technology, and revisits the "War of the currents", the feud between Nicola Tesla and Thomas Edison over alternating and direct current (ac vs. dc).

**DVD 3347**

### **Overseas Highway**

The southernmost leg of Highway 1 links Miami and Key West, runs 120 miles, and once included 42 bridges (many have been replaced by wider spans). It runs over so much ocean that it has been nicknamed "the highway that goes to sea". The documentary recounts the history of the highway from its railroad origins to its modern day reconstruction projects.

**DVD 3887**

### **Panama Canal**

The story of the monumental yet problematic construction of the famous canal that connects the Atlantic and Pacific Ocean. The documentary starts with an earlier, and deadly, attempt by the French to make the passageway, and details how the US, with the prodding of Theodore Roosevelt's wish for increased US foreign power, pushed past problems of disease, water and earth to finish the project in 1914.

**DVD 3528**

### **Quarries**

A look at the explosive activity and immense excavation required to mine rocks, from ancient Egypt to large contemporary quarries

**DVD 3350**

## **ENGINEERING DISASTERS**

Part of the History Channel's Modern Marvel series, these episodes revisit tragic occasions in engineering history. As the History channel puts it, "[w]hether attributable to accidents or the foibles of the ego, engineering mistakes have caused some of the greatest disasters in human history." The programs dissect the damage and causes of well-known disasters, presenting an opportunity to learn from past mistakes.

### **More Engineering Disasters**

This program looks at the USS Thresher submarine which, on its test run in 1963, never resurfaced; the collapse of the St. Francis dam in 1928 that led to deadly flooding in a lower valley; the explosive Vanguard rocket launch, and the sinking of the Andrea Doria.

**DVD 3526**

### **Engineering Disasters 3**

Focuses on the leaning tower of Pisa; the 1961 SL-1 nuclear reactor accident in Idaho; the fatal voyage of the Soyuz 11 cosmonauts; the collapse of Texas tower 4, an air force radar surveillance tower; and the disappointing fate of NASA's much championed Mars polar lander.

**DVD 3346**

## **EXTREME ENGINEERING**

Discovery channel's series on adventurous, monstrous and sometimes outlandish engineering projects, including the plans for a tunnel that runs across the Atlantic Ocean, and Tokyo's seemingly impossible mile-high sky city project.

### **Boston's Big Dig**

Boston's infamously aggravating traffic inspired a plan to build a highway 120 feet under the city, running above and below subway lines. This is a documentary of the 14 billion dollar "Big Dig" in process.

**DVD 3224**

### **Bridging the Bering Strait**

The Bering Strait may once again be passable by land, this time over concrete. If built, the bridge would span 55 miles of turbulent and icy ocean, and provide a passageway automobile and train traffic as well as pipelines for oil, gas and electricity. This documentary looks at the plans for the bridge, and at engineers trying to solve forecasted problems.

**DVD 3225**

### **Building Hong Kong's Airport**

When Hong Kong outgrew its downtown airport, the city decided to build one 16 miles off the coast by merging two islands and constructing a network of highways and tunnels to reach it. The terminal itself ranks as the largest enclosed space in the world, and the entire structure makes for a breathtaking view. This documentary examines the construction of what has been called the largest civil engineering project in history, with footage and interviews with engineers.

**DVD 3229**

### **City in a pyramid**

Overpopulation is driving a plan to build a kilometer-high pyramid in Tokyo Bay that will house, in suspended skyscrapers, 750,000 people and will be constructed by robots. There's a lot to explore in these plans.

**DVD 3226**

### **Container Ships**

A look at the plans for a remarkably tremendous container ship, which, when finished by its Danish shipbuilders, will be the largest and most innovative of its kind and will appear like a skyscraper floating at sea. It will be powered by a 93,000-horsepower diesel engine, the largest in the world.

**DVD 3223**

### **Cooper River Bridge**

The Cooper River bridge is the largest cable-stayed bridge in North America. The 8-lane bridge runs 1,546 feet and connects Charleston, South Carolina, to the neighboring town of Mt. Pleasant. What makes the bridge even more remarkable is its imperiled position in hurricane alley and its proximity to huge container ships. This documentary looks at hurried last stage of construction, when hurricane season loomed dangerously.

**DVD 3305**

### **Excavators**

Follow a mining company in Minnesota as they struggle to meet a sudden upswing in global demand for iron. Their smaller, older equipment is no longer sufficient, so they've commissioned a custom built "super shovel", a \$10 million dollar piece of cutting-edge equipment.

**DVD 4685**

### **Holland's Barriers to the Sea**

Because Holland is mostly below sea level and has been plagued throughout its history by flooding and destruction from sea storms, the country has produced some of the most innovative technology and design to provide for dry land. This documentary explores Holland's newest structures, with the amazingly complex computer-controlled dams of Delta Works and the Measlandkering, a giant sea surge barrier with 1000-foot long hydraulic-powered arms that can be shifted when the weather requires it.

**DVD 3228**

### **Iceland Tunnels**

A project to carve, out of solid rock, 45 miles of tunnel in the upper regions of Iceland in order to turn ice into electricity. The project calls for the world's most experienced and knowledgeable tunnel diggers and immense tunnel boring machines to drill through hundreds of feet of earth each day in the face of the constant threat of collapse or fire.

**DVD 3304**

### **Oakland Bay Bridge**

A look at the quest to build a new, 2 mile and earthquake-proof bridge that connects San Francisco and Oakland. The construction project - the largest in Californian history - is behind schedule, because of the enormity of the problems needed to be addressed.

**DVD 4734**

### **Offshore Oil Platforms**

In order to withstand the tropical storms and hurricanes of the Texas gulf, engineers have had to tweak and build upon the original oil rig design. This documentary provides a look at the construction and installation of a tarzan class rig, the only class capable of withstanding a hurricane. This "jack-up" rig is equipped with motors that can drill into the ocean floor and push the platform above the ocean waves.

**DVD 4686**

### **Subways in America**

New York City's extensive and historic subway system, which carries more than a third of all mass transit passengers in the entire country, is undergoing a complete overhaul to make it the most advanced in the world. On top of the enormity of this project is the complication of having the subway remain open while work is underway.

**DVD 3222**

### **Tokyo's Sky City**

A mile-high building, housing 100,000 residents, may be built in Tokyo in order house a growing population on a land-shrinking island. The building will be like a city, with parks, homes, schools, and offices. The architects have drawn an impressive plan, but it's up to the engineers now to figure out how it all will be built, while still being able to withstand an earthquake, typhoon, or fire.

**DVD 3302**

### **Trans-Atlantic Tunnel**

An ambitious plan for linked tunnels that will float across the 2,100 miles from Canada to Scotland, carrying magnetically levitated trains that run 300mph, reducing the trip across the Atlantic to under 7 hours. Before this comes to fruition, however, engineers have to figure out how to deal with ocean currents strong enough to bend the tunnels, and strategize for possible mid-ocean derailments.

**DVD 3230**

### **Tunneling Under the Alps**

When finished, the AlpTransit Tunnel will be, at over 56 miles, the longest tunnel in the world. This documentary looks at the tunnel work in progress: a fastidious, laser-guided carving out of rock beneath the massive Alp mountains, where threats of cave-ins, floods, explosions and implosions always loom.

**DVD 3227**

### **Widening the Panama Canal**

As bigger ships are being built, more are being turned away from the Panama Canal simply because they are too wide. Wider canals may be built in Mexico or Colombia adds even more incentive for the Panama Canal to be widened. The project, however, is not a simple one, neither in design nor construction, and workers must deal with the treacherous mountain terrain and possible mud slides.

**DVD 3303**

## SILICON RUN

This industry-famous series shows, step by step, the manufacture of integrated circuits and the integration of them into computer systems, from a pure crystal of silicon, to assembly of a PC board.

### **Silicon Run I, 2nd edition**

An update of the classic Silicon Run documentary, the second edition is an exploration of crystal growth through integrated circuit fabrication, with new footage and technological advances.

**DVD 4774**

### **Silicon Run II**

Silicon Run II takes up where the first Silicon Run left off - exploring the steps needed to take a fabricated wafer and convert it into a micro-device that runs computers.

**DVD 4775**

### **Silicon Run Deposition**

A look at thin film deposition in CMOS fabrication, with a look at the different qualities of the raw materials involved.

**DVD 4777**

### **Silicon Run Lithography**

In-depth exploration of photolithography needed to image and print intricate circuitry plans at the sub micron level.

**DVD 4778**

### **Silicon Run Etch**

Explanation of different etching processes - dielectric, silicon, and metal.

**DVD 4779**

### **Silicon Run Implantation**

An in-depth look at ion implantation in the semi-conductor process.

**DVD 4780**

### **Silicon Run Lite**

A less complicated version of the subjects in Silicon Run I and II, with a basic introduction to crystal growth, circuit design, and clean room procedure.

**DVD 4776**

## DESIGN DOCUMENTARIES

### **Designing a Lawnmower**

Watch the evolving plans for a new model of lawnmower, from sketches to testing, manufacture, and launch.

**DVD 4315**

### **Designing Toys**

A look at how different toys are designed and built, from design to manufacture and marketing.

**DVD 4332**

### **Mission Almost Impossible: Vacuum Cleaner Design & Marketing**

As the title suggests, an account of a new vacuum model - this one bag less - and its path from design to successful product.

**DVD 4316**

## MYTHBUSTERS

Special effects experts put urban legends to the test in this popular Discovery channel series.

### **Mythbusters Steel Toe Amputation**

You've heard the warning about steel toe boots: if you drop something heavy on them, the steel inside will chop off your toes. Join the Mythbusters guys as they test this theory, plus a bonus experiment with a soda-powered human rocket.

**DVD BEING PROCESSED**

## TEXAS: THE STATE OF WATER

The demand for water grows with our state's population and businesses, along with concern as to how we can keep our water sources plentiful and clean enough to meet this demand. This documentary, by the Texas Parks and Wildlife Department, takes a look at this important issue, and provides a Texan case study of an issue affecting people worldwide.

Volume I **DVD 4717**

Volume II **DVD 4718**

## POWERSHIFT

A Cameron Diaz-narrated documentary about energy use around the world and ways to lessen consumption and use alternate sources of energy.

**DVD 4783**