

# MINING CONNECTS BRITISH COLUMBIA

## WIRING

From power grids to motherboards, copper wiring is used to conduct electricity in many modern devices.

Revenue generated by copper in B.C. (2012) was approximately **\$1.8 BILLION**

## LCD DISPLAYS

Silica, an industrial mineral mined in B.C., is used as a coating material between layers of glass to prevent contamination in LCD screens.

## TELEVISION

Europium, a rare earth element, is used in televisions to produce the colours red and blue, while terbium creates the green colour.

## SMARTPHONES AND TABLETS

An estimated **2.9 MILLION** adults own smartphones in British Columbia.

These devices are created using a multitude of metals, including:

**GOLD • SILVER • COPPER  
RARE EARTH METALS  
PLATINUM • ALUMINUM**

15:1 Graphite-Lithium

## BATTERIES

Graphite, mined in B.C., is a critical component of lithium-ion batteries, which power many of today's devices

## SPEAKERS

Metals such as titanium and aluminum are used in headphones and speakers to produce music through their application in transducers, which convert electrical energy into sound.



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# MINING POWERS BRITISH COLUMBIA

## WIND POWER

The average wind turbine contains:

**4 TONNES OF COPPER**  
**300 TONNES OF STEEL**

## HYDROELECTRIC

In BC's hydroelectric dams, **copper** plays a vital role. As the rotors turn, magnets create an electrical charge inside copper wire, which sends out the electricity.

## TRANSMISSION

The Northwest Transmission line runs 344km through Northern BC, and contains over **138 TONNES OF STEEL**

## ENERGY STORAGE

Zinc-air batteries are being used to deliver renewable power when consumers need it. Zinc acts as the fuel, which offers a higher energy density compared to standard batteries.

In 2012, BC's zinc generated revenue of **\$685 MILLION.**

## HYBRID CARS

Gold, copper, zinc, molybdenum, lead, and coal are all used to manufacture hybrid vehicles. In fact, hybrid cars use as much copper as conventional vehicles.

## SOLAR PANELS

A typical solar panel uses roughly **20G** of silver.

**90%** of the most common photovoltaic cells use a silver paste to convert sunlight into useful electricity.



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# MINING HEALS BRITISH COLUMBIA

## BANDAGES

Casts for broken limbs are made by soaking bandages in wet plaster, which is made from **gypsum**.

**Silver** is increasingly being infused into bandages to help inhibit bacterial growth in wounds.

## MEDICAL IMAGING

**Molybdenum** is used in molecular imaging to display biochemical processes and physiological activity in the human body.

B.C. is Canada's only producer, but the nation still ranks **4TH** in global production.

## X-RAY

Both doctors and patients wear lead aprons when using x-rays to reduce radiation exposure as much as possible. **Lead** is used for its high density and high atomic mass.

## CANCER TREATMENT

Hyperthermic techniques in cancer treatment (applying heat to the whole body) are using **gold** to amplify low energy heat sources that efficiently target cancer cells while avoiding damage to healthy tissue.

Nanoparticles are so tiny that about **500** would span the width of a hair.

## DENTISTRY

**Gold** is used in dentistry for fillings, bridges, and crowns because it is malleable, non-allergenic, and chemically inert.

A gold crown between 10-18 carats and that weighs around 1/10 of an ounce could be worth **\$50-100**.

## SUPPLEMENTS

**Zinc** is found in every tissue of the body and some use supplements to maintain healthy levels. A deficiency in zinc can affect fertility, cardiovascular health, and athletic performance.

**30,566,480 KG** of zinc was produced in B.C. in 2012.



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# MINING GROWS BRITISH COLUMBIA

## ONE WALL CENTRE

**1500** glass units were replaced in a recent renovation. Largest units required 145 kg of **silica**. Now think about how much the whole building would need!

## SHANGRI-LA

Reaching a height of 197 metres, Shangri-La is British Columbia's tallest building. It takes a lot of resources to construct a building of that size:

Reinforcing steel: **6,000 TONNES**

Concrete: **51,000 METRES<sup>3</sup>**

## BC PLACE

Constructing BC Place's new retractable roof was a big job. Just look at these stats:

Length of cable used: **35KM**

Steel: **16,000 TONNES**

## HARBOUR CENTRE

Any large skyscraper, like the skyline-defining Harbour Centre, will use miles upon miles of **copper** wiring to power its electrical needs.

## CANADA PLACE

One of Vancouver's most iconic features, Canada Place's sails, uses a high-quality teflon-coated fiberglass in its 250,000 sq. ft of fabric. B.C. minerals such as **silica** and **dolomite** are used to create fiberglass.



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# MINING ENTERTAINS BRITISH COLUMBIA

## PEAK 2 PEAK

For Whistler's Peak 2 Peak gondola, 4,000 cubic meters of concrete was used for the footings, platforms, masts, and columns.

**36,610,439 TONNES**

of construction aggregates, like sand and stone, were produced in B.C. during 2012.



## MUSIC

Most metal acoustic guitar strings are typically wound using bronze. Bronze is an alloy consisting primarily of copper.

Copper generated revenues of **\$1.8B** in B.C. (2012)



## CAMPING

Tent poles are often made up of tubes of fiberglass, which comprises of silica, limestone, kaolin clay, fluorspar, colemanite, and dolomite.

Industrial and construction minerals like these generated nearly **\$700M** in revenue. (2012)



## SKATING

To glide across the ice, hockey players and recreational skaters skate on steel.

The steel in hockey blades is formed from metallurgical coal, which represents

**MORE THAN 90%** of the coal produced in B.C.



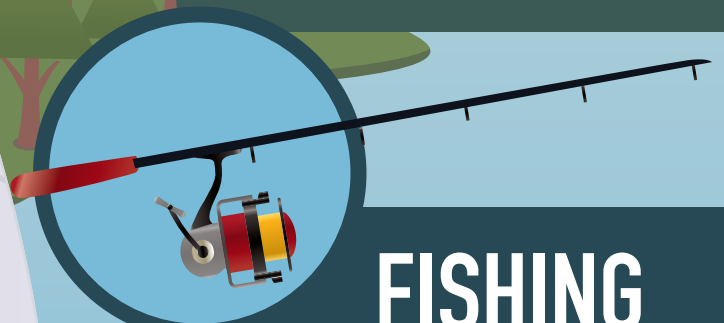
## GOLFING

Titanium and its alloys are used for manufacturing wood golf heads for its lightweight and high-strength characteristics.



## FISHING

Graphite is the most popular choice for fishing rods because of its lightweight and ability to offer further and more accurate casts.



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# MINING MOVES BRITISH COLUMBIA



## CYCLING

Every material used in bicycles, from the steel processed by burning metallurgical coal to the aluminum, titanium or carbon fibre in the frame, is derived from mining.

## PORT MANN BRIDGE

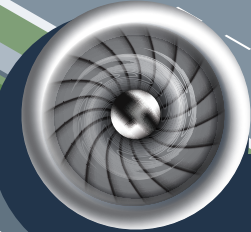
12,000 tonnes of structural steel  
25,000 tonnes of asphalt  
157,000 m<sup>3</sup> of concrete



## SKYTRAIN

Route size: **68.7KM**

Skytrain relies on aluminum conductors to facilitate over **396,500** trips each weekday.



## AVIATION

Typically, there are **23** precious metal containing parts in an aircraft engine.

Gold is critical to aircraft avionics and platinum maintains the longevity of turbine blades.

## ROADS

There are over **47,000KM** of roads and highways connecting BC communities, requiring concrete, asphalt and structural steel for bridges.



## BUSES

**2,481** buses, requiring steel and aluminum, operate in over 130 BC communities

Copper is critical to powering Vancouver's trolleybus fleet, which uses **11,000** trolley line poles.



## CARS

Cars in BC: **3 MILLION**

Platinum group metals are used in catalytic converters, which help prevent approximately **4** million tonnes of pollution each year.

The average car requires about **630KG** of steelmaking coal to produce.

