

dorm energy

Water Usage-

Energy to heat 10 min shower per day is roughly 3,200 KJ, 160grams of wood burned.

Textile Environmental Cost

The average college student brings about 38.73kg (38,730g) of clothing/ textiles to college. According to Professor King's provided data, for every gram of clothing, 10 grams of CO₂ is released into the atmosphere. This means that the average college student is responsible for 387,300g of greenhouse CO₂.

To break down the specific sources of the CO₂, we took the composition of jeans (87% cotton, 10% polyester, and 3% elastic) as the median composition of clothing. Cotton, while a sustainable resource, is harvested using cotton pickers, a diesel run machine. While diesel fuel takes the least amount of processing to be ready for consumer use, its combustion releases CO₂ as well as harmful particulates. Particulates are harmful to humans and animals rather than solely the environment. Polyester is the product of fossil fuels. Processing fossil fuels always leads to waste carbon as well as excess CO₂. Elastic products can come from sustainable rubber trees, but these are again harvested and processed by CO₂ producing machinery.

This 10g CO₂ per gram of clothing also includes the environmental cost of washing and drying these textiles. Detergent is produced using a combination of chemical and natural products so there is limited CO₂ production here. However, the water heaters often burn petroleum, natural gas, and other fossil fuels for heat producing some CO₂. Then, the engines that turn the wash basins in the washers and dryers use electricity, which can come from sustainable resources such as wind, water, and, in some cases, sun. However, these technologies are not as fully developed as they might be, so we are back to producing MORE CO₂.

Lighting and Heating

Working under the assumption that:

- Each dorm room uses (on average) 4 incandescent light bulbs
- Each dorm rooms has each bulb on for approximately 8 hours each day
- Each light bulb is a 60 Watt bulb

Each dorm room expends **1.920 kWh of energy and produces 576 grams of CO₂** on lighting.

Also, taking an average November day in Waterville and assuming:

- The average temperature is 36 degrees F
- Each dorm room is heated to 70 degrees F
- Dorm room air is all nitrogen
- Each dorm room is 200 sq. feet and 10ft high
- The energy is produced by burning wood (at the Colby steam plant)

Each dorm room expends **1391.8 kJ and produces 65.651 grams of CO₂ per day.**

Misc

IT ALL ADDS UP--The energy consumption of misc. dorm items

Think about it...

Category	Gen. Items	Average Dorm Mass (kg)	gCO ₂ : gProduct
School supplies	Books, notebooks, pens, markers, etc...	5	5:1
Furniture	Couch, shelves, storage, etc...	20	5:1
Recreation	Bike, sports equipment, etc...	7	8:1
Room Decor	Pictures, white boards, posters	1	6:1

COOT Equipment	Sleeping bag, day pack, clothing	10	12:1
Food	Snacks, food packaging	1	2:1

Total consumption: 44 kg of products, 369kgCO2 produced