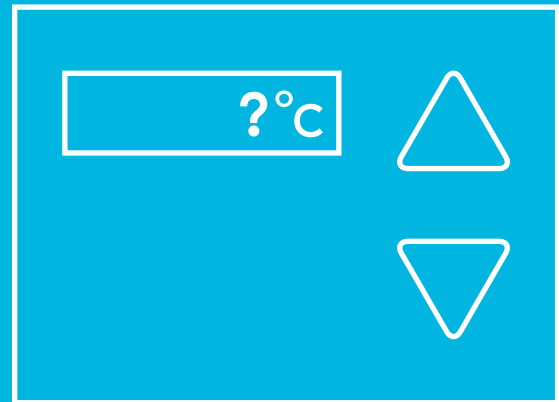


Cold war:

How many B.C. employees are losing the battle over office air conditioning



Report
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 **BC Hydro**
Power smart

The use of air conditioning in offices across British Columbia has increased by almost a third in recent years, and temperature tensions among employees and those in control of their office temperature are rising.

Highlights

- A new survey commissioned by BC Hydro found that almost one-quarter of British Columbians are experiencing discomfort and conflict over air conditioning in their workplace.
- The survey found one in four British Columbians have argued with a co-worker over the office temperature, or witnessed this type of argument in their workplace.
- Two-thirds of British Columbians said they either have no means by which to adjust the office temperature or they must ask permission to do so, and 60% of these respondents said the temperature makes it difficult to concentrate on work.
 - Almost 30% of British Columbians said steps have been taken by their employer to stop employees from adjusting the temperature.
- BC Hydro data shows the use of A/C in commercial buildings and offices has increased by almost a third since 2006 and many offices in B.C. set the thermostat as low as 20 degrees Celsius during the summer.
 - Those who work in offices with shared workspaces, or open offices, are twice as likely to say there is an A/C battle happening in their workplace.
- The survey found that almost four times more women than men describe their office as too cold during the summer.
 - As a result, nearly 60% of women who reported being cold are regularly using a blanket or wearing extra layers to deal with chilly office temperatures.
- Men are twice as likely as women to describe their office temperature as ideal during the summer, while women are almost twice as likely as men to say that the office temperature makes it difficult to concentrate on work and recent research support this. For example a recent study published in the journal PLOS ONE revealed women work better in warmer temperatures while the opposite is true for men.

Solutions

- Conflicts between employees over the A/C may seem harmless but office relationships and productivity can suffer if arguments escalate into a full-blown cold war. BC Hydro recommends the following ways to help business diffuse temperature tensions:
 - Optimize the cooling system: In the summer months, it is recommended that offices and commercial buildings should be cooled to between 23 and 26 degrees Celsius when occupied, and the A/C should be turned off when unoccupied.
 - Consult an HVAC professional: Use the BC Hydro Alliance of Energy Professionals network to hire a professional HVAC consultant who can identify and implement energy efficiency solutions.
- Employees that are feeling the office chill in the summer are encouraged to get outside for a walk in the sun to warm up and bring an extra sweater or layers that can easily be removed depending on the temperature.

¹ Battle for the thermostat: Gender and the effect of temperature on cognitive performance. PLOS ONE .

Air conditioning use on the rise

Summer has finally arrived and many offices across British Columbia are turning up the A/C to deal with warmer weather.

As the summers become warmer and older buildings are replaced by newer builds, the use of A/C in B.C. is on the rise. BC Hydro data shows that the use of A/C in offices and commercial buildings in B.C. has increased by almost a third since 2006, and it is predicted that A/C use will continue to grow over the next few decades, according to a report released by the International Energy Agency entitled *The Future of Cooling*².

This rise in the use of A/C can be attributed to a few factors including population growth, climate warming, a rise in global incomes and newer more efficient buildings which may lower overall energy consumption, while at the same time make making A/C more accessible.

In fact, BC Hydro data indicates that approximately 63% of commercial and industrial customer accounts have at least some portion of their enclosed area space cooled.

Cold war conflict

The rising use of A/C can cause conflict among those who work in offices and commercial spaces. A new survey³ commissioned by BC Hydro found almost a quarter of British Columbians have experienced conflict over A/C in the workplace.

For instance, about 25% have argued or witnessed an argument over the office temperature, with the vast majority (88%) of these arguments happening in person. Over 30% of those who do have access to control the thermostat setting admit to having adjusted the temperature behind a coworker's back, or know a colleague that has done the same.

The survey found that office layout is a factor when it comes to temperature comfort at work. Almost two-thirds of British Columbians, who work in offices with an open office workstation layout, said the office temperature during the summer makes it difficult to concentrate, compared to less than 40% of those who work in a closed or traditional configuration.

Who controls the office A/C?



² International Energy Agency: *The Future of Cooling*

³ Online survey conducted by Majid Khoury on behalf of BC Hydro of 500 British Columbians from June 20 to 25, 2019

Employee control

The battle over the A/C is made worse by the fact that many British Columbians are powerless when it comes to adjusting the temperature at their workplace and the temperature is distracting them.

Two-thirds of employees said they either have no means by which to adjust the office temperature, or they must ask permission to do so, and almost 30% said steps have been taken by their employer to stop employees from adjusting the temperature through either an office-wide email, verbal discussion or signage posted near the A/C unit or thermostat.

When asked who controls the office A/C, over half said that a facilities management or maintenance group is in control, 20% said employees are in control, and 13% said their boss or manager is in control.

This lack of control over the A/C is a distraction for many British Columbians at work. For example, 63% of respondents who work in offices where a facilities management or maintenance group controls the A/C said that the temperature makes it difficult to concentrate at work.

The survey also found that temperature is a hot topic in offices across B.C. – one in four employees said they overhear co-workers talking about the temperature at least once a day or more – and when it comes to “water cooler” chat, almost 50% of those surveyed said the office temperature ranks among the top three topics discussed on an average weekday morning in the summer months.

Battle of the sexes

The survey found women are feeling cold more often than their male coworkers – with almost 40% describing the office as too cold in the summer months, compared to just 14% of men. The survey found men are twice as likely to describe their office temperature as ideal.

Women also report having more trouble getting work done in a chilly environment. For instance, twice as many women surveyed said that the office temperature during the summer makes it difficult to concentrate on work – and while both women and men resort to coping mechanisms to deal with chilly office temperatures, women do so more often. For example the survey found:

- Over half of women wear layers or use a blanket at work to combat the chilly temperature, while only 26% of men report needing to do this.
- One-third will sip a hot drink to stay warm compared to less than 20% of men.
- About 15% will use a space heater at their desk, while 10% of men report doing the same.
- Around 20% of women will leave their office and go outside more during the day while just about 10% of men report needing to do this to stay warm.

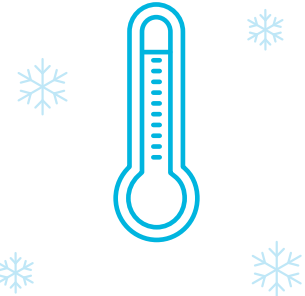
When it comes to controlling office temperature, women are twice as likely as men to say that the management at their workplace has too much power over the temperature, and one-quarter of women report that steps have been taken by their workplace to stop employees from adjusting the temperature.

How employees cope with cool office temperatures



Wear layers or
use a blanket
43%

Have a hot drink
23%

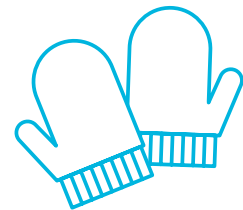


Ask to turn
down the A/C
20%



Go outside
more often
16%

Use a space heater
at their desk
12%



Other
3%

Degree to disagree— the physiology factor

About 20% of women surveyed said that they feel the office temperature is better suited to men, and recent research supports this. According to a study published in 2015 in the journal *Nature Climate Change*⁴, many building climate systems were developed in the 1960s using an outdated thermal comfort model that relies on a formula based on the resting metabolic rate of men.

Specifically, the key variable in the thermal comfort model is based on the resting metabolic rate of a middle aged 150–pound–pound male who wears a business suit in the office.

The study goes on to say that perhaps this middle–aged man in a business suit once represented the majority of office workers, but women now make up half of the workforce, and usually have a slower metabolic rate than men, which could point to why women feel colder in the office.

And when it comes to productivity and cognitive performance, a new study published in the journal *PLOS ONE*⁵ found women work better in warmer indoor temperatures, while men work better in cooler indoor temperatures.

Solutions: calling a temperature truce

Not only can the growing use of A/C cause conflict in the workplace, it can also add significantly to a business' electricity costs and have a negative environmental impact.

While it may not be possible to please everyone in the office when it comes to temperature, there are ways to reduce A/C use and ease office cold war tensions.

Tips for employees

In the summer months, employees should be encouraged to speak to their manager and fellow employees about the temperature instead of resorting to adjusting the thermostat behind their co–worker's backs, as this act may only cause further temperature tensions in the workplace.

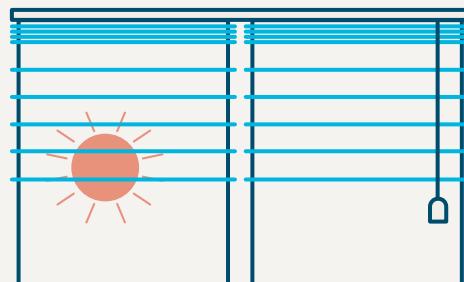
If this does not work, employees can take matters into their own hands if they are feeling the office chill, by:

- Getting outside for a walk in the sun to boost mood and warm up.
- Opting to wear layers such as a sweater over a blouse/shirt that can easily be removed depending on temperature.
- Asking to move work locations.

Tips for keeping the office cool

Tip 1: Close blinds/drapes

Tip 2: Close windows during the day when inside temperature is cooler than outside



⁴ *Nature Climate Change*: Energy consumption in buildings and female thermal demand

⁵ *PLOS ONE*

Proper use of window blinds can dramatically reduce the need for A/C in a building

During hot summer days, BC Hydro recommends employees with windows that receive direct sunlight for much of the day close their blinds to block the sun's direct rays. It may also be helpful to delegate an employee or two to be in charge of closing the blinds in meeting rooms and common areas with similar sun exposure.

Tips for businesses

BC Hydro recommends that during the summer offices and commercial buildings should be cooled to between 23 and 26 degrees Celsius when occupied, and the A/C should be turned off when unoccupied.

Take advantage of HVAC controls

Depending on the building, programmable thermostats can be a relatively inexpensive way to manage temperatures during the summer and winter months. Newer, large commercial buildings that have a direct digital control (DDC) system can do a "night purge". This flushes the building with cool outdoor air before people arrive in the morning and before the outdoor air temperature rises. To implement these improvements, BC Hydro recommends contacting an HVAC contractor.

Make sure the office HVAC system complements the layout

Many times office layouts change without adjustments/balancing of HVAC systems, which can result in some areas that are over-cooled. In this instance, BC Hydro recommends air duct work balancing to help avoid occupant discomfort and performing this with each office layout change. An HVAC consultant can help determine the best way to go about making these improvements.

BC Hydro's Alliance of Energy Professionals provides a list of energy efficiency trade professionals to help business customers identify opportunities to save energy, install energy-efficient products, as well as look for incentive opportunities through BC Hydro.

Track energy usage

MyHydro is an online tool available for all businesses to track energy usage in detail, allowing businesses to see how much electricity the office A/C is using and when, and then make adjustments.

With MyHydro, businesses can check for wasted power after hours, confirm the effects of energy-saving measures, and investigate peaks in usage and gain an understanding of how everyday habits and seasonal changes affect electricity use.

