

Stop. Think. Live.

Working together to keep you safe



Énergie NB Power

TEN LIFESAVERS

- 1** High voltage utility overhead wiring is not insulated - violate the minimum safe clearances and you can be injured or killed. Pg. 4
- 2** Underground wiring can be as dangerous as overhead wiring - call the utility before you dig. Pg. 10
- 3** Water and electricity make a deadly combination. Pg. 11
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PREFACE

Electricity has revolutionized our civilization. Think of what our modern life would be like without it to operate electric lights, television sets, computers or electrical appliances. Electricity is the key to our advanced society and it enables us to live in comfort. **When treated with respect, electricity gives us many benefits, but each year New Brunswickers are injured or killed in electrical mishaps.**

- In 1996, two people were killed in electrical accidents involving electric power lines. The cases below illustrate the importance of taking electricity seriously.
- In March 1996, a 49 year old man received a fatal electric shock when a winch cable came in contact with a 7200 volt overhead distribution line.
- In June 1996, an 18 year old youth received a fatal electric shock when attempting to dislodge a tree from a 138,000 volt overhead transmission line.
- realize the hazards of even relatively low voltages.

WHAT IS ELECTRICITY?

Electricity is a type of energy. In nature it occurs as lightning, so in a way, the electricity we use is “man-made lightning”. To make electricity requires fuel sources such as coal, oil, natural gas, water pressure or nuclear energy. The power utility converts these sources into electric power at its generating plants.

WHY WOULD WE WANT TO CHANGE ONE POWER SOURCE INTO ANOTHER?

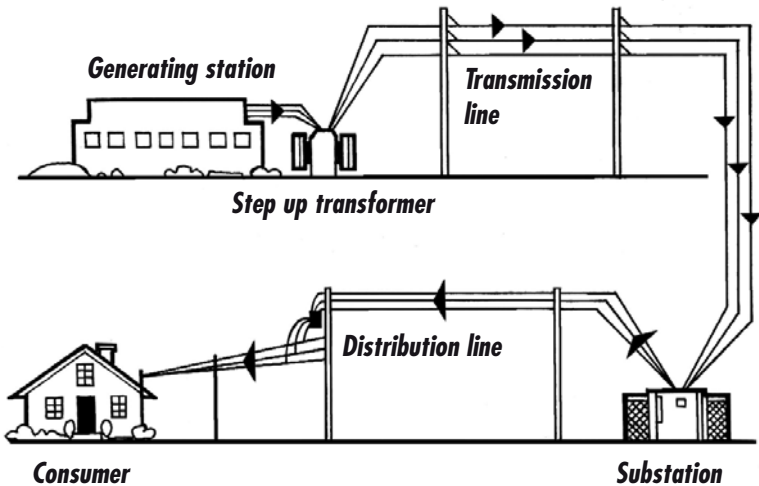
Some types of fuel or power are better suited to do a job than others. Electricity works well to run equipment like motors, televisions, computers, toasters, movie projectors, etc. Some people prefer to heat their homes with electricity, while others use oil or gas. You can probably think of a number of appliances or pieces of equipment that could not run without electricity, and others like stoves, clothes dryers and heaters, that may run on alternative fuels.

The source that is used to generate electric power depends on what is locally available.

In New Brunswick coal, oil, water, nuclear energy and purchased power are used to provide electricity to our customers.

Once electricity is generated at the power station, it is sent to various substations by means of overhead transmission (power) lines. The majority of these are found in wooded areas.

From the substation the electricity is sent to homes, farms, industries and businesses in the province through overhead distribution (power) lines. These overhead distribution lines are found in municipalities, cities, alongside roadways and highways.

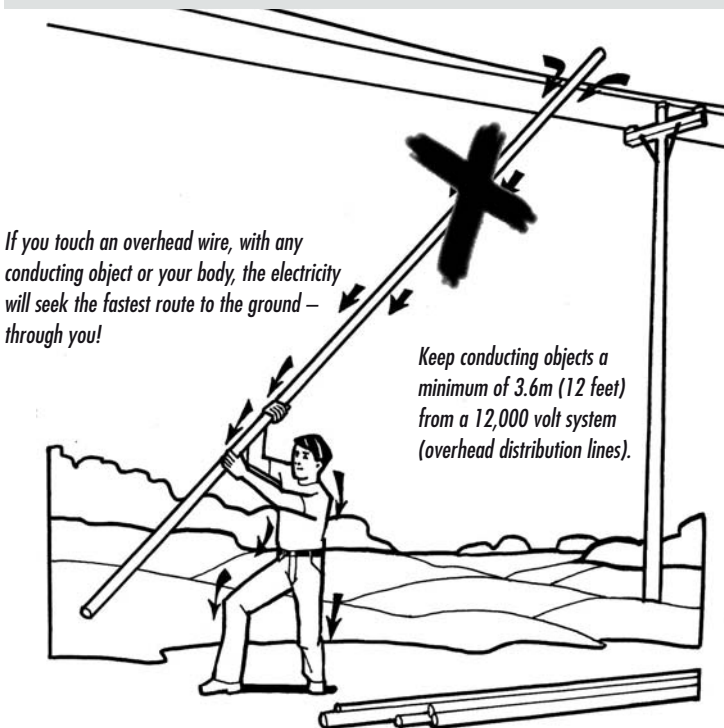


Keeping a “minimum safe clearance” between yourself and the electrical conductor.

Electricity flows along wires without causing any harm unless it is somehow interrupted, so keep a “minimum safe clearance” between yourself, or any conducting object, and the power line at all times.

Electricity has a unique characteristic which is important to remember: it seeks the fastest and shortest route to the ground if it is interrupted. If you are the object that interrupts the flow, the electricity will be conducted through you to the ground, causing injury or death.

0 to 750 volts	(.9m) 3 feet
751 to 100 000 volts	(3.6m) 12 feet
100 001 to 250 000 volts	(5.2m) 17 feet
250 001 to 345 000 volts	(6.1m) 20 feet



1 HIGH VOLTAGE UTILITY OVERHEAD WIRING IS NOT INSULATED - VIOLATE THE MINIMUM SAFE CLEARANCES IT AND YOU CAN BE INJURED OR KILLED.

Most wires and extension cords that we have in the home have a protective outer covering, so we can touch them and not come in direct contact with the live wires.

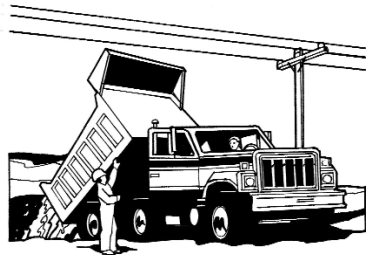
Outside overhead wires are not insulated with a protective outer covering; they are bare. Most electrical accidents are caused by people making contact with overhead wires. If you touch them with anything like a kite, ladder, crane, irrigation pipe or TV antenna, the current will be directed to the ground through the object and you, causing injury or death.

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When moving large machinery, post a guard to see that your equipment does not come closer than the minimum safe clearances. If there isn't enough clearance, take another route or call the utility to raise the wires. We have the specialized equipment to do the job. Never attempt to raise wires yourself.

Keep equipment or conducting objects a minimum of 3.6m (12 feet) from a 12,000 volt system (overhead distribution lines).

We invite you to call us for advice and for free warning signs to post at your site.

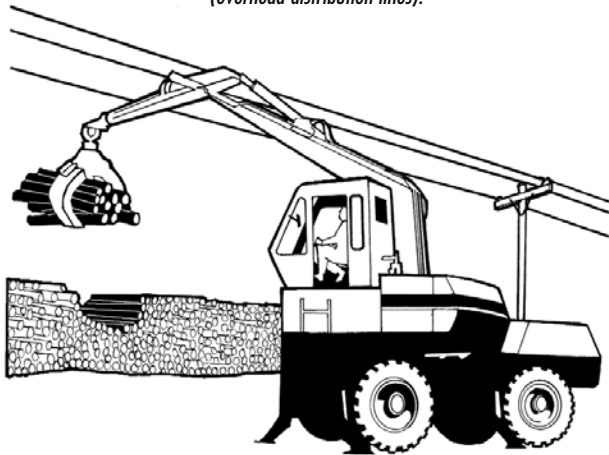


When logs are piled for future pickup and/or delivery, they should be piled away from overhead power lines.

Piling logs underneath overhead power lines could cause hoisting equipment or even logs to contact the energized wires which could cause a serious injury or a fatality.

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When logging operations are carried out around power lines, adequate clearances must be maintained at all times in compliance with provincial regulations. Reference to clearances stipulated in provincial regulations can be found under “minimum safe clearances”.

Before you cut, LOOK UP FOR THE LINES It could save your life. If a tree falls onto a line, please contact NB Power at 1-800-663-6272

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NB Power cares for the safety of its customers. Please help us help you to make sure you are working in a safe environment by contacting NB Power for a free presentation on electrical safety in your workplace.

Stop. Think. Live.



1-800-663-6272

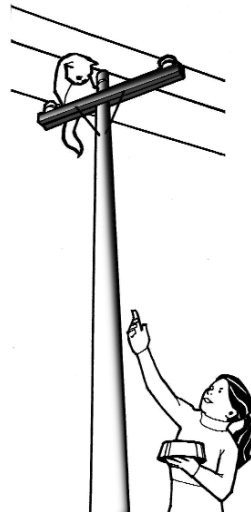
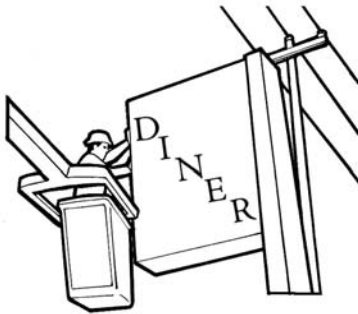
Water is a conductor of electricity and because all trees contain a certain amount of water, electricity passes easily through them. Therefore, great care must be taken when pruning trees or removing dead trees. Make sure the branch or tree being cut doesn't come within the minimum safe clearance.

When erecting a sign, place it away from overhead power lines in accordance with provincial regulations.

Sometimes a pet cat will go up a power pole. Resist the urge to climb up after it, otherwise you'll put yourself and your pet in great danger. No one should climb a power pole except a trained lineworker. Usually, your pet will come down on its own if you make sure there are no dogs present; call to it nicely and offer it food.

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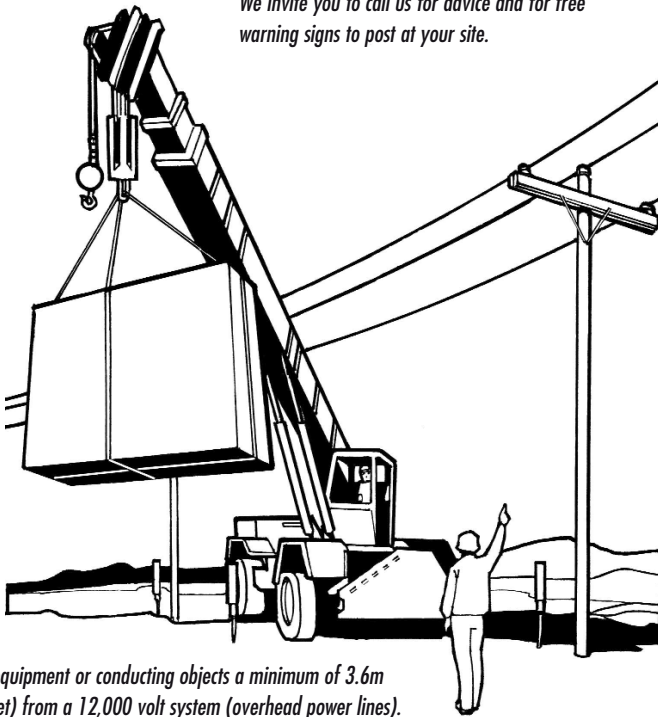


NB Power cautions workers to look over each work site, before starting construction, to check for power lines.

After the job is finished, great care should be taken in dismantling scaffolds and lowering cranes. Often this is the most dangerous part of the job since workers on the site may have become oblivious to the surrounding wires.

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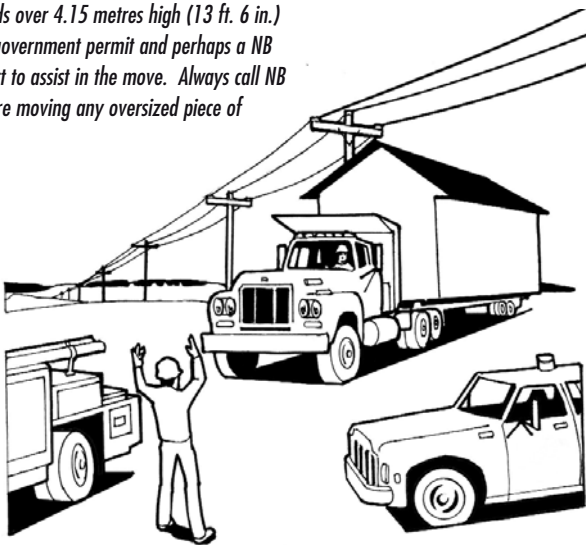
We invite you to call us for advice and for free warning signs to post at your site.



Keep equipment or conducting objects a minimum of 3.6m (12 feet) from a 12,000 volt system (overhead power lines).

If a crane or truck does make contact with overhead power lines, remain in the equipment and warn others to stay away. Try to lower or swing the crane boom away from the wires. Reverse the truck to try to free it, if possible. The best course, if you can't free it, is to stay with the equipment until someone from the utility comes and tells you it is safe to leave. If you must leave before then, due to the vehicle being on fire, jump free so your body isn't touching the equipment and the ground at the same time. "Keep your feet together as you jump. Avoid touching the vehicle as your feet come into contact with the ground. Take short, shuffle steps keeping both feet as close together as possible. Move in this manner from the vehicle for at least 10 metres (33 feet)."

Moving loads over 4.15 metres high (13 ft. 6 in.) requires a government permit and perhaps a NB Power escort to assist in the move. Always call NB Power before moving any oversized piece of equipment.



Keep equipment or conducting objects a minimum of 3.6m (12 feet) from a 12,000 volt system (overhead distribution lines).

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2 UNDERGROUND WIRING CAN BE AS DANGEROUS AS OVERHEAD WIRING – CALL THE UTILITY BEFORE YOU DIG.

Today, underground wiring is becoming much more common in residential areas and is found on some farms, too. If you plan to dig, check with your telephone and electric utility to find out the approximate location of buried lines. Underground power wires are insulated and protected, but if damaged, are as dangerous as uninsulated overhead power lines.



When operating excavation equipment or posthole diggers, be sure to know where the underground utilities are. When planting trees, installing fence posts or digging trenches don't forget the underground utilities.

3 WATER AND ELECTRICITY MAKE A DEADLY COMBINATION.

In the kitchen

The kitchen is the site of much activity in the home and the location of many electrical appliances. It's not surprising, therefore, that many electrical accidents occur here. The combination of electrical appliances and water in the kitchen needn't create problems with a little preplanning and good judgement.

Adjusting your behavior to electrical realities will let you fully enjoy your "electric kitchen". Since water and metal are such good conductors of electricity, we recommend that you don't plug in or disconnect appliances with wet hands or while touching a faucet or metal object. The combination of water, chemicals and electricity when you are cleaning your oven is very risky. Therefore unplug your oven or open your disconnect in your main electrical panel.



By using well-maintained, CSA approved appliances and keeping them as far away from the sink as possible when plugged in, you'll create a safe working environment.*

* Canadian Standards Association

In the bathroom

All new homes should be equipped with special circuit breakers called “ground fault interrupters” (GFI) in the bathroom. These outlets are designed to stop the power to an appliance if it becomes faulty or comes in contact with water. While they are effective in protecting you from electrocution, you may still experience a nasty shock. The best approach is to observe the same safety habits you would if the GFI circuit breaker was not installed.



In the livingroom

Water and electricity rarely meet in the livingroom except when steam cleaning a carpet. If you clean your carpets in your home, choose well-maintained equipment and wear shoes or sturdy slippers to help protect yourself from electrical shocks. Before you clean, check that you won't come in contact with any electrical cords during cleaning. For general safety in the livingroom, we remind you to keep lights and appliances in good working order.

In the basement

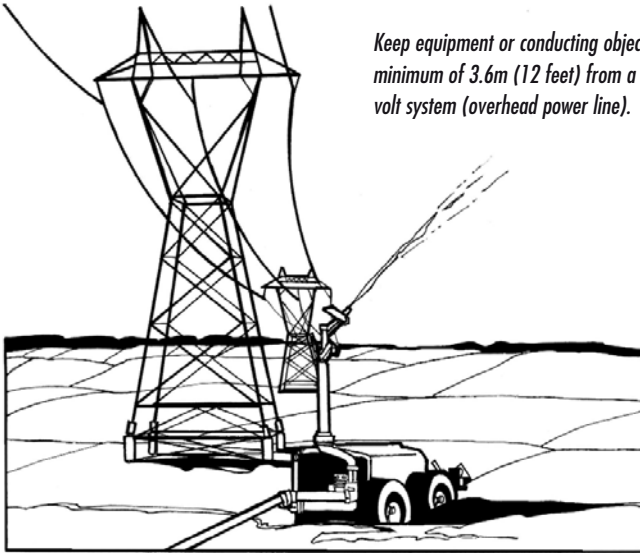
Fortunately, most of us seldom have to contend with a flooded basement. Should you ever have the problem, we strongly advise you not to go downstairs. There are a number of electrical appliances in basements, such as washers, dryers, as well as electrical outlets. If any of these electrical sources have energized the water in the basement, you could be electrocuted. Instead of going downstairs yourself, call us for assistance.

Outdoors

As a word of caution, never use power tools, extension cords, hedge trimmers or electric lawnmowers outdoors when it's raining or the ground and vegetation are wet.

Field Irrigation

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Keep equipment or conducting objects a minimum of 3.6m (12 feet) from a 69,000 volt system (overhead power line).

If you irrigate your crops, consider that the same rule applies of not combining water and electricity. Consequently, be sure water is not directed at overhead wires, since electricity could be conducted through the water and irrigation pipes to you.

Electrical Storm Safety Tip

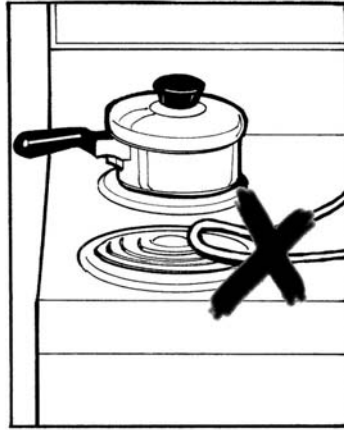
Should you happen to be caught outside during a storm, find low ground and stay away from open space, trees, water and hill tops. Electricity is attracted to high places, so you're safest crouching low in a protected spot such as at the base of a hill. You may get wet, but it's much safer than standing under a tree.

4 ELECTRICAL CORDS SHOULD BE IN GOOD CONDITION. HEAVY DUTY EQUIPMENT AND POWER TOOL CORDS SHOULD BE GROUNDED.

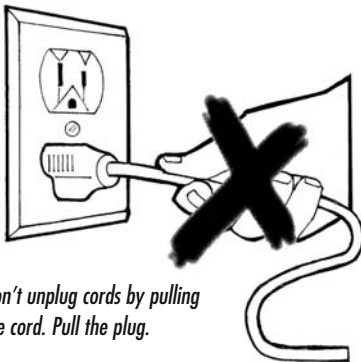
Cord sense



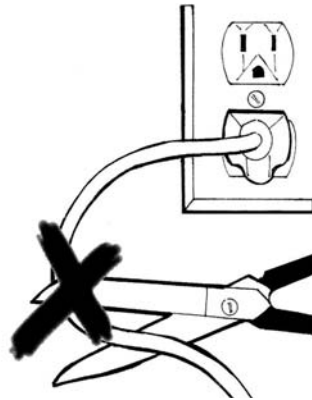
Don't use frayed cords.



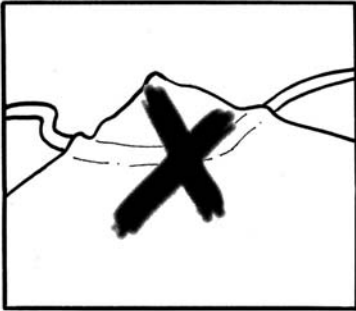
Don't allow cords to come in contact with electrical elements.



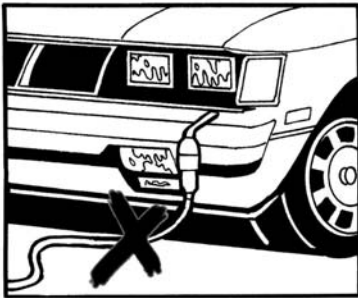
Don't unplug cords by pulling the cord. Pull the plug.



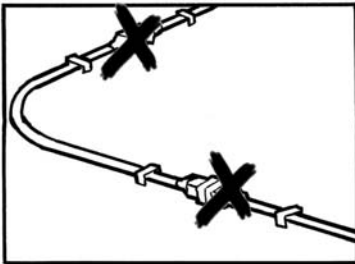
Don't cut a cord that's plugged in.



Don't run a cord under a carpet. It can wear and short out - causing fires.



Don't use a cord outdoors that isn't in good condition.



Don't rely on extension cords for permanent wiring.



Don't pick up tools or electrical appliances by cords.



Don't use heavy duty electrical equipment that isn't grounded or double insulated.

What is grounding?

Most appliances have two wires in their cords to conduct electricity, but appliances like stoves, dryers, washing machines and power tools* are equipped with one or two additional wires called ground wires. If the equipment is faulty, these wires reduce electrical shock hazard by allowing electricity to follow its natural compulsion to flow to the ground.

We can't overemphasize the importance of having properly grounded or double insulated power tools and equipment, especially those used in the dampness of a basement or outdoors. The majority of electrical accidents involving power tools are caused by a cord that is in poor condition or has been improperly replaced, thus the tool can become energized.

Mobile homes, holiday trailers, recreational vehicles, boats with shore power, and block heater extensions should have grounded cords. Decorative lighting, lawnmowers, hedge trimmers, and all power equipment and extension cords used outdoors should be equipped with them. Grounded tools are also a wise choice when working in an area with a cement or metal surface, both of which provide a path for electricity.

Some electrical outlets that should be grounded are not, and it may be necessary to have them changed by a qualified person.

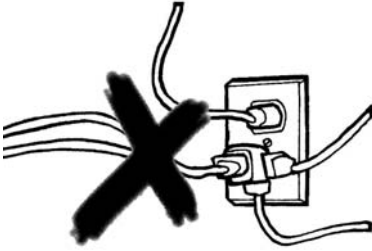
New homes may have GFI circuit breakers installed to protect outdoor plug-ins.

** Some power tools are double insulated instead of being grounded.*

5 OVERLOADING CIRCUITS CREATES A FIRE HAZARD.

Circuits

If you have unused electrical outlets in your home, cover them for the protection of pets and small children. Caps are economical and readily available at most hardware stores.

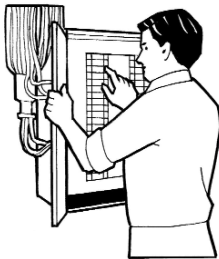


Overloading circuits creates a fire hazard. Turn power off before fighting electrical fires.

Fuse boxes

Even if your home doesn't have a fuse box but is equipped with circuit breakers, be sensitive to the number of appliances you have on each electrical outlet. If you have too many extension cords or three-way plugs, perhaps it's time to consider additional wiring.

Be aware of warning signals that could indicate fuse box problems. Contact your electrician if circuit breakers open or fuses repeatedly blow for no apparent reason, or if you detect rust in the fuse box. Other danger signals that must not be ignored are overheating, discolouration and flickering lights.



Use fuses or circuit breakers with the correct amp rating. Before changing them or doing electrical work around the house, disconnect the power by moving the main power switch to the OFF position.

6 ONLY QUALIFIED PEOPLE SHOULD INSTALL ELECTRICAL WIRING.

If you need new wiring done in your home, rely on a qualified electrician who has the training and experience to do the job right.

Wiring permits are necessary in New Brunswick before any changes can be made to electrical circuits.

To obtain a permit, contact the Electrical Inspection Division of the Department of Advanced Education & Labour, NB at the regional office in your area.

Regional offices are located in the following areas:

- Bathurst
- Miramichi
- Campbellton
- Saint John
- Edmundston
- Moncton
- Fredericton
- Woodstock



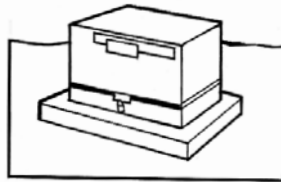
Whenever you need additional wiring in your home, have it installed by a qualified person.

7 KEEP OUT OF FENCED SUBSTATIONS AND GENERATING STATIONS, DON'T CLIMB POWER POLES OR TOWERS. WATCH FOR DAMAGED OR OPEN POWER TRANSFORMER ENCLOSURES ON RESIDENTIAL STREETS.

Substations and powerhouse enclosures contain equipment transmitting tremendous amounts of high voltage.

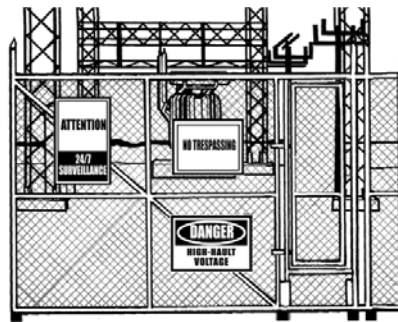
Always have respect for areas marked with HIGH VOLTAGE warning signs. Only qualified personnel from the utility should venture into these areas, or climb power line poles or towers.

If your ball lands in one of these enclosures, don't go after it yourself. Call the utility and we can send someone to retrieve your ball and return it to you later free of charge.



Transformer enclosures are frequently seen on residential streets. If you should happen to see an open or damaged transformer enclosure, report it immediately to NB Power and keep others away. It could be dangerous.

Never try to open an enclosure or poke wires, sticks or other objects into it. Significant amounts of electricity pass through these street installations – don't let that electricity pass through you.



8 IF YOU SEE VANDALS AT WORK, CONTACT THE POLICE RIGHT AWAY.

When vandals damage NB Power property, they're putting their friends and neighbors at risk. Service to hospitals, fire alarms and the community are disrupted, endangering the lives of innocent people. Vandals are also putting themselves in danger of falling lines, close contact with electrical equipment, and criminal prosecution.

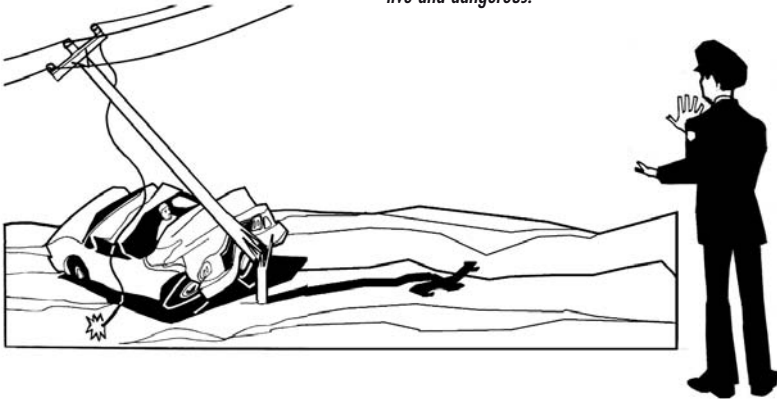


9 STAY AWAY FROM FALLEN OVERHEAD WIRES.

Auto accidents can cause broken poles and fallen wires, which must be considered live and dangerous. If you are involved in such an accident stay in your vehicle, try to reverse away from the wire, and warn others to stay clear and ask someone to call the utility at once. If you must leave your vehicle, as in the case of fire, jump free, making sure you don't touch your car and the ground at the same time. "Keep your feet together as you jump. Avoid touching the vehicle as your feet come into contact with the ground. Take short, shuffle steps keeping both feet as close together as possible. Move in this manner from the vehicle for at least 10 metres (33 feet)." Once free, please call the utility at once.

Poles or wires may be damaged during storms as well. Keep away from a fallen wire, whatever the cause of damage. Even if a wire doesn't spark, it could be live. Inform the utility at once.

Fallen wires must always be considered live and dangerous.



10 TALK TO NB POWER WHEN YOU NEED ELECTRICAL ADVICE OR ASSISTANCE.

Whenever you dig, plan to move buildings or need to know about clearance regulations on the job site, talk to NB Power. If you see a disconnected or fallen wire, an open power transformer enclosure, or a kite caught in overhead wires – please call us immediately.

Call NB Power if you would like electrical advice or assistance.

1-800-663-6272

WHAT TO DO IN CASE OF ACCIDENTS

These 10 lifesavers were developed to protect you from harm. In the event that you are involved in an electrical accident, the following measures could save a life. Please acquaint yourself with them.

What happens when someone comes in contact with an electrical current?

Electricity causes uncontrolled muscle spasms or convulsions. Even low voltage electricity can cause such sustained muscular contractions that the victim is unable to free themselves. The signals from the brain can't compete with the electrical charge to allow them to loosen their grip. A convulsion may be powerful enough to throw someone from the wire, but if not, a rescuer must intervene to turn off the current to separate the victim from the circuit.

MINIMUM SAFE CLEARANCES WHEN WORKING NEAR OVERHEAD POWER LINES

Regulation 91-191 under the New Brunswick Occupational Health & Safety Act

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For additional copies of this booklet contact:

Health & Safety Department
NB Power
P.O. Box 2000
Fredericton, New Brunswick
E3B 4X1

Telephone: **1-800-663-6272**

