

## DUCTLESS HEAT PUMPS: What you need to know

**M**aybe you were in the process of buying a home, watching the latest episode of your favorite house-hunting reality show or just making small talk at the office water cooler when you heard the term, “ductless mini-split heat pump.” Perhaps you then wondered what it is or what it does. Although it is a heat pump, it does more than help warm your home.

### What are ductless heat pumps and how do they work?

A ductless heat pump, also known as a ductless mini-split system or ductless air conditioning, is an HVAC system that does not require the use of ducts to operate. Ductless heat pumps work both to heat and cool your home.

Ductless heat pumps generally consist of an outdoor and indoor unit. Typically, they are used in homes with no ductwork, but they have been proven useful in a variety of homes that might be difficult to heat or cool.

Ductless heat pumps connect the outdoor units to the indoor units through a combination of power cables, refrigerant lines, suction tubing and condensation drain lines. In a ductless heat pump’s cooling process, warm air from within the home enters the indoor unit and blows over the evaporator coils. In the evaporator coils, a refrigerant solution absorbs the heat, reducing the room’s temperature and releasing cool air into the room. The evaporator coils send the warmed refrigerant to the outdoor unit, where condenser coils cool the refrigerant before sending it back to the indoor unit, beginning the process anew.

In a ductless heat pump’s heating process, the air from outside enters the outdoor unit, blowing over the unit’s coils. These coils absorb the heat from the outside air, which warms the refrigerant. The warmed refrigerant is then sent to the compressor coils, where it becomes even hotter, warming the air within the unit. The indoor unit will then blow this hot air into the room. Meanwhile, the refrigerant cools and is sent back to the outdoor unit to repeat the process.

### Types of ductless heat pumps

- **Single-zone mini-split system:** A single-zone



mini-split system comes with an indoor and outdoor unit for controlling the temperature of a small apartment or house. The indoor unit is typically placed in a central location in the home.

- **Multi-zone mini-split system:** A multi-zone mini-split system comes with one outdoor unit and up to five indoor units. It is designed to meet the needs of larger homes, and the indoor units should be placed strategically throughout the home.
- **Wall-mounted unit:** Most ductless heat pumps are mounted high on a wall in the home to maximize airflow. They are designed to blend into a wall for a home’s aesthetic.
- **Floor-standing unit:** Floor-standing ductless heat pumps are installed on the floor. In most cases, wall mounting is preferable. Floor-level ductless heat pumps can prove beneficial in homes with slanted walls, low ceilings or large windows.
- **Ceiling cassette unit:** Ceiling cassette ductless heat pumps are installed directly in the ceiling. Though this option is more costly, homeowners sometimes choose it for aesthetic reasons or out of a desire to maximize wall and floor space.

If your home does not have ductwork, you may be a great candidate for a ductless heat pump. Be sure the heat pump can accommodate the size and number of rooms you are looking to heat and cool. You will also want to make sure the heat pump is compatible with the lowest temperatures expected in the area. ■



Lower Yellowstone Rural Electric Cooperative CEO **Jason Brothen** presents a \$2,000 check to **Vernette Torgerson, Jonetta Erickson** and **Sarah Degn** to go toward the repair of the basketball court at the Rau Elementary School.

## Rural Development Finance Corporation awards grant

The Rural Development Finance Corporation (RDFC) recently granted \$2,000 to Rau Elementary School to help repair the school's basketball court. The current basketball court is crumbling, which is resulting in injuries to the students. The school uses the court on a daily basis.

Lower Yellowstone Rural Electric Cooperative is a member of RDFC. As a result, communities in our service area are eligible to apply for a grant of up to \$3,000 for community-based projects.

For more information on the grant or to download an application, go to [www.lyrec.coop](http://www.lyrec.coop). ■

## Service awards



**Chris Hillesland**  
**45 YEARS**

**C**hris Hillesland started at the cooperative as a junior in high school in 1976. After he graduated in 1978, he joined the line crew. Hillesland worked on the line crew for 22 years before transitioning into the operations department. He enjoys camping and spending time with his grandkids during his free time. ■



**Mike Eberling**  
**40 YEARS**

**M**ike Eberling began working weekends at LYREC in 1980 as part-time shop help, while he attended the University of North Dakota-Williston. He received associate degrees in advanced welding and diesel technology, then began full-time employment in 1983. Eberling enjoys camping and spending time with his grandkids when he isn't working. ■



**Greg Rauschendorfer**  
**30 YEARS**

**G**reg Rauschendorfer was elected to represent District 6 on LYREC's board in 1993. He lives on a farm and ranch in northwestern Richland County. Rauschendorfer has been a dedicated board member for the past 30 years. He has served as vice president on LYREC's board since 1995. ■

# Power Pole Clutter

Flyers, satellite dishes, posters, basketball hoops, decorative lights, even hunting stands. You name it, someone has tried to staple, nail or tie it to a power pole. Here's a quick look at the dangers and pitfalls associated with unauthorized pole attachments.



## Gloves

Staples, tacks and nails can puncture a lineworker's insulated rubber gloves and expose them to electric shock.

## Boots

Objects can cause a worker to fall if they snag their boots.

## Climbing Hooks

Nails and tacks can impede climbing hooks from sinking into the wood.

## Dangerous

A person who gets too close to energized lines while attaching an object can be electrocuted.

## Distraction

Some materials posted on poles, like mirrors or holiday decorations, can be a distraction to drivers.

## Illegal

Many state and local laws and the National Electrical Safety Code prohibit any unauthorized items on poles. Utilities can face fines if these attachments aren't removed.



## Pole Damage

Even small holes can allow moisture and insects past the pole sealant, which can shorten the life of the pole or weaken it and cause it to fall in a storm.



## Hinders Repairs

Posters and flyers can hide identifying markers on poles and slow repair work.



# ELECTRICAL SAFETY: What your teen should know

**P**arents of teens can relate. You want to share the important 411 (information) with your teen, but they brace themselves for the next lecture.

#IDon'tNeedYourUnendingWisdom.  
#HereComesAnotherLecture.

Your teen may give you the quintessential eye roll, but sharing this safety information could help save a life.

So, when the time is right, relay this information to your teenager to prevent electrical shock.

## At home

- Do not use a cellphone near the bathtub or sink or with wet hands while it is plugged in and charging. Do not use an extension cord in the bathroom to extend your phone's reach closer to the tub. Teens have died after a charging phone dropped into bathwater.
- Do not sleep with your charging cellphone under your pillow or in bed with you. The phone can overheat, causing bedding to catch on fire or burns to the skin. Also, a short in the charging cord can cause electrical shock when you are using your phone. This is especially a risk when using generic or incompatible charging equipment. Always replace charging equipment with brand name/matching items. They cost more, but they are less likely to malfunction.
- Do not charge your cellphone, tablet or other devices on soft surfaces, such as a blanket, pillow or bedding.

## On the road

- **THIS ADVICE CAN SAVE YOUR TEEN'S LIFE:** If you are in an accident involving a downed power line, a damaged pad-mounted transformer or other electrical equipment, **DO NOT** get out of your car. Call 911. Only get out if there is smoke or your car is on fire. If that is the case, make a clean exit from the vehicle (make a solid jump out without touching the car) and hop with your feet together as far as you can. **DO NOT WALK.** If there is damaged power equipment, the ground and anything else the lines touch could have electrical current running through it.
- If you approach an accident with a downed power line, **DO NOT** attempt to help the victims and do not go near the scene. Instead, call 911 and warn others not to approach the area.

## Outside

- Do not use plugged-in devices, such as a charging cellphone, near water like a pool or hot tub or in damp conditions.
- If you are swimming in a lake and feel odd sensations in your body, such as tingling or zaps, swim away from the dock or other source of electricity. Sometimes electrical currents can leak into the water and can cause electric shock drowning. If you feel odd sensations in a wading pool, hot tub or swimming pool, get out.

Please take the time to convey these important messages. They could prevent injuries and save lives. For more information about electrical safety, visit [www.safeelectricity.org](http://www.safeelectricity.org). ■



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