

how to wire the inside of your home

An information package for
Single Family Homes

This guide is intended to be a resource to assist you with prewiring your new home for telephone service. It also includes some helpful hints for finding and repairing existing telephone wiring troubles in your home.

(Refer to the Glossary of Technical Terms on page 11 of this brochure. It explains various technical terms italicized throughout this guide).

What is house wiring?

House wiring is all the telephone wiring at your house beyond the *demarcation point*.

Northwestel will provide service to the *demarcation point*. In most cases, this is the *demarcation block* that is installed in a *protector* called the *Network Interface Device (NID)* or *Telephone Network Interface*.

Any installation, repair, or maintenance work on wiring that runs from the *demarcation block* into your home (i.e., house wiring) is your responsibility.

You have the following options for house wiring work:

1. Northwestel provides house wiring service beyond the *demarcation point*. Call 811 for details on Northwestel's House Wiring rates and services.
2. You may choose to do the work yourself.
3. You may hire a contractor to install or repair your house wiring.

If you are having a contractor supply the wiring or are doing it yourself, please ensure the proper standards are followed. Installing house wiring should be done according to the Canadian Electrical Code (CEC). Northwestel will not allow the connection of non-standard telephone wiring to the *NID*.

Where can I get a copy of Canadian Electrical Code (CEC)?

You can get a copy of the CEC from your local Electrical Utility Board.

Where can I get wire and other supplies?

Most electrical supply stores carry all the materials and wire required to do house wiring. If Northwestel installs your house wiring, our trained technicians will provide the appropriate supplies and your account will be charged accordingly.

What standards apply for wire and materials?

Northwestel recommends the wire be a minimum four pair twisted, 24 AWG, solid, annealed, copper

wire. This wire ensures better transmission quality and meets both voice and data requirements. Don't use flat wire such as telephone set line cord or lamp wire for prewiring, it may cause transmission problems. If the wire is being run through a *conduit* it must have a CMR fire rating. If the wire runs through an open or plenum space, it must have a CMP fire rating, as per the CEC.

Jacks, outlets and all other materials should be Canadian Standards Association (CSA) certified and installed/used only for their intended purpose.

What am I responsible/liable for if I wire my house?

You are responsible/liable for the following:

- Correcting any service difficulty you create which harms Northwestel's network.
- Paying a service charge when Northwestel must make a repair visit to your premises to remedy problems resulting from defective house wiring.
- You will assume the following risks when installing or maintaining your own house wiring:
 - *Loss of service*
 - *Damage to property*
 - *Personal injury or injury to your contractor*

What if I am not the owner of the residence where I request work to be done?

If you are not the owner of the residence, you should discuss your house wiring requirements with the building owner or property manager.

If you choose Northwestel, work will not be done on the premises until the owner or property manager of the building fills out the Building Consent Form included at the end of this brochure. A copy of this form is included in this brochure. After the building owner or property manager has filled in the form, call 811 for details on where to send the Building Consent Form.

Northwestel will apply the house wiring and associated charges to the account of the telephone number that is being connected. Therefore, you are responsible for making payment arrangements for any house wiring done for your telephone number.

PREWIRING YOUR HOUSE

What is prewiring?

Prewiring is the method of installing telephone wiring so that it is concealed within the walls of your home. Prewiring is done in the framing stage, at the same time as the electrical wiring and before the application of insulation, drywall and vapour barrier. It is recommended the wiring be placed in a *conduit* so that it can be moved or replaced without disturbing the wall. If wiring is not in a *conduit*, any wiring work that is required after the walls have been surfaced will either have to be surface wired or the wall will have to be disturbed.

What do I need to do to prewire my house?

1. Pick locations for jacks.

Select locations for jacks suiting both your present and future telecommunications needs.

Northwestel suggests a minimum of one jack in each of the following rooms:

- Each Bedroom
- Living Room
- Kitchen
- Family Room
- Study
- Basement

It is not necessary to have a phone connected at every jack location. Installing a flexible system at the prewiring stage means you will not have to add unsightly surface wiring or cope with inadequate facilities in the future. Also consider the possibility of putting in additional jacks for fax machines, modem lines or additional telephone lines. Planning for future technological demands on your prewiring can save you both time and money for as long as you own your home.

2. Provide a route for the telephone wiring.

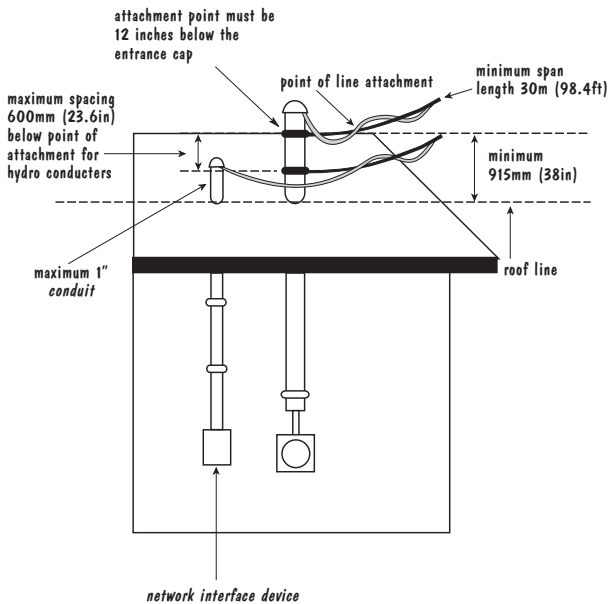
You are responsible for providing a route on your property, either a trench or a clear path for aerial construction.

Underground

Northwestel will supply 60 metres of drop wire and rope in duct. If the route is longer than 60 metres, the cost of additional drop wire and rope in duct will be charged to your account. The trench should be 46 centimetres (18 inches) deep.

Aerial

Northwestel will supply 60 metres of drop wire. You must provide the service attachment device and it is recommended you provide a suitable entrance Electro Metallic Tubing (2.5 centimetres (1 inch) EMT) mast subject to CEC requirements. If Northwestel cannot connect to a power mast or use an existing building attachment then a 5 centimetre (2 inch) rigid steel *conduit* with weatherhead will be necessary.



3. Provide ground wire.

For both underground and aerial routes, you should supply a minimum of #10 AWG green insulated ground wire (wire conductor) to the *distribution backboard* for acceptable grounding. Ensure the ground wire is long enough to reach from the NID on the side of your house to the electrical company's ground electrode. You also must provide the pathway from the NID with a minimum 30.5 centimetres (12 inches) separation to this electrode.

4. Provide a backboard.

When the NID is placed on the outside of your home:

You will be required to install a backboard onto the side of your home where Northwestel can mount the NID. The backboard must meet the following specifications:

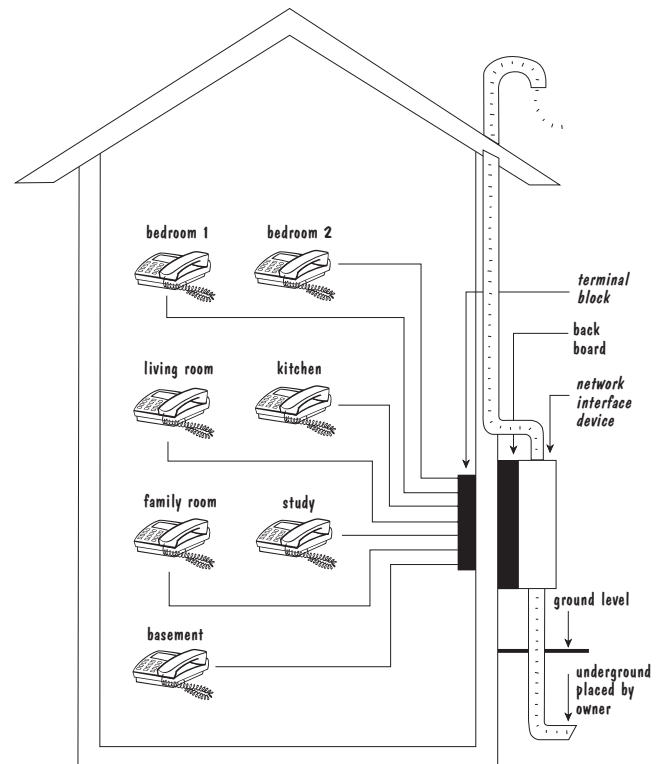
- A 9" x 9" x 3/4" piece of plywood attached to the outside of your house next to the electrical meter.

When the NID is placed inside your home:

You will be required to install a backboard onto the wall of your home for the NID that meets the following specifications:

- A 9" x 9" x 3/4" piece of plywood attached to the wall of your home near the electrical panel and entrance *conduit*.

Whether the NID is placed on the inside or outside of your house, the *conduit* should also be run through the backboard and house wall to allow house wiring access to the *terminal block*.



5. Northwestel will install a *NID* and a *demarcation block*.

In new homes, Northwestel will terminate the telephone entrance wire in the *NID* on your installed backboard located either on the outside wall of your home (near the electrical meter) or inside your home (near the electrical box and entrance *conduit*).

6. Plan the wire route in your home.

To avoid possible damage from future construction, rubbing, overheating, dampness or contact with power wires, carefully plan the route for the wiring within your home. The route should follow a path through the floor joists, over ceilings, through wall studs, and behind baseboards. Keep in mind the route you select should conceal the wiring.

A separate telephone wire from the main terminal location to each jack outlet is required. Telephone wiring should never loop through outlets. Separate wire runs allow for ease of movement and arrangement of your telephone lines and create sufficient cable pairs for future maintenance purposes.

tip: Where not to put the wire:

- Transmission problems may be experienced if wiring runs parallel to power cables within the same stud or joist space.
- Do not pull telephone wires through holes occupied by electrical cables.
- Do not locate telephone outlets between the same studs as power outlets.

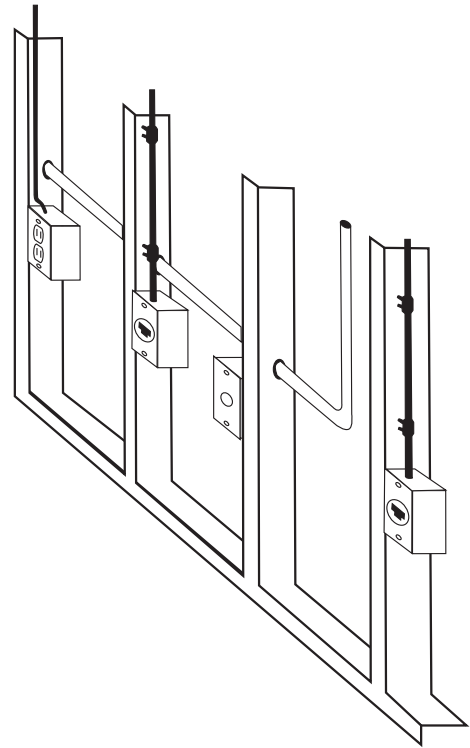
For wire standards, please refer to the section on material/hardware standards.

7. Install *terminal block*.

Northwestel recommends you terminate all wire from the *demarcation block* on a *terminal block*. The *terminal block* should be located on the backboard in your mechanical or electrical room so the house wiring can be easily attached to the *demarcation block*.

8. Install house wiring and jacks.

Install a Type 1104 electrical outlet box to a stud at each location where a jack may be required. When installing these boxes, they should be affixed at least 30.5 centimetres (12 inches) above the floor.



Run an individual telephone wire to your *terminal block*. Be sure to keep wire runs unbroken between jack locations and the *terminal block*. If you splice two short lengths together it can cause interference on your telephone line either now or in the future. When using a *terminal block*, there can only be one wire run from the *terminal block* to the *NID* for each separate line (for each number).

Leave at least 30.5 centimetres (12 inches) of excess wire at the jack and the *terminal block* for ease of connection.

9. Connect the house wiring to the *demarcation block*.

The *demarcation block* is located inside the *NID* enclosure mounted on your backboard.

To gain access to the *NID* enclosure and the *demarcation block*, loosen the screw located in the middle of the *NID* enclosure.

The standard *demarcation block* consists of one universal jack and two termination screws for house wiring.

The screw terminals on the *demarcation block* are marked in one of the following ways:

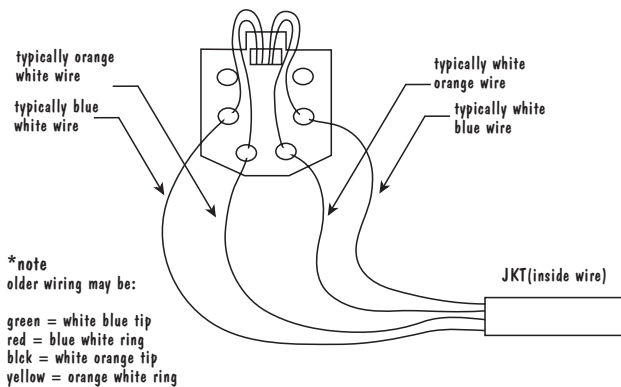
- Colours: Green (tip side of line)
Red (ring side of line)
- Notations: T1 (tip side of line)
R1 (ring side of line)

It is your responsibility to connect the house wiring to the *demarcation block*.

For each telephone number, run one pair of wires from your *terminal block* into the *demarcation block*.

Terminate one pair (two wires) on the *demarcation jack* for each telephone number requested.

Rear View of the Jack:



10. Test the installed house wiring.

After service is provided to the *demarcation point* by Northwestel, each jack should be checked as follows:

1. Plug in a telephone set and listen for a dial tone.

If you hear a dial tone, proceed to Step 3. If you do not hear a dial tone, proceed to Step 2.

2. Ensure that all wire connections are secure.

Try a different telephone to ensure the first is not defective.

If you still don't hear a dial tone or you hear excessive noise, test the line at the *demarcation jack* in the *NID*. Remove the plug at the *demarcation jack* and attach a standard telephone.

If you don't hear a dial tone or the excessive noise continues, call Northwestel Repair at 611.

3. Hook your phone back into a jack.

Dial a digit and listen. The tone should stop and the line should be quiet. If you hear excessive noise after dialing, go back to Step 2.

Who should I contact if I have questions about any of this information?

Please contact Northwestel Repair at 611, if you need more details on prewiring steps or Northwestel's policy on *NID* installation.

WIRING FOR MOBILE HOMES

This section explains who is responsible for the installation of wiring in mobile home parks (courts), on mobile home lots, in mobile home subdivisions and on private property in general.

The location where Northwestel mounts the *NID* on a mobile home may vary in each mobile home park (court).

Service Requirement	Mobile Home Parks (Courts)	Mobile Home Subdivision	Mobile Home on Private Property
Trenching and backfilling for buried cable	Park Owner	Subdivision Developer	Mobile Home Owner
Pole space for aerial cable distribution	Park Owner	Subdivision Developer	Mobile Home Owner
Entry into home	Mobile Home Owner	Mobile Home Owner	Mobile Home Owner
Easements	Park Owner	Subdivision Developer	Mobile Home Owner

TIPS FOR HOMES WITH EXISTING HOUSE WIRING

If I have existing wiring in my home, where is the demarcation point?

In older homes, Northwestel terminates the entrance telephone cable at a location called the *protector* if a

demarcation block hasn't been installed. The *protector* can be located on an outside or inside wall of your home. Northwestel is replacing old protectors with *NIDs* on a next-in time basis.

What can I do when I have trouble with my phone?

tip:

Trouble-Shooting Tips

- Make sure all connections have been properly made and all wire contacts are secure.
- Make sure no part of the wire is broken, split or stretched.
- Make sure no staples, nails, screws, or other objects pierce the wire.

Use the following troubleshooting guidelines to determine whether the problem with your phone is house wiring or a Northwestel network problem. Additional tips are listed in our Trouble Shooting Guide available on our web site - www.nwtel.ca

1. The problem may lie in the telephone hooked up to the jack. Try a different telephone in that jack before starting to work on the wiring or the jacks.

tip:

Two or more phones in the house?

- Test the phones at each location. Ensure you do not unplug all of the phones at once because if there is problem with one of your phones, you will not be able to identify the faulty phone if that is the problem.

2. Try using the telephone in other jacks in your home. If another jack works, the problem is with the house wiring to the first jack.

tip:

If you hear static...

- The wire may be wet or pierced by a staple, nail or sharp object.
- Connections could be loose at a jack or connecting point.

tip:

If you hear buzzing...

- A piece of wire may have come in contact with metal somewhere. Check where jacks have been secured to ensure the wires inside the jack are not touching any metal around the jack.
- Check all connecting points to ensure all colours have been matched accordingly.

3. If your home is equipped with a new *NID*, try your phone in the jack located at the *NID* mounted on the outside of your home. If you have dial tone at the *NID*, the problem is with your house wiring and you are responsible for the repair work.
4. If you have verified your telephone is not defective and there is still no dial tone at the jack, call Northwestel Repair at 611.

What are my options if a problem is found with my house wiring?

You have the option of requesting house wiring service (e.g; jack repair) from Northwestel. Call a Customer Services Representative at 811 for details on rates, finding another house wiring provider or fixing it yourself.

Glossary of Technical Terms

conduit - A protective pathway for house wiring. Usually PVC or metal depending on application.

demarcation block - A terminating block used for inside or premise wiring.

demarcation jack - The jack located on the *demarcation block* inside the *NID*.

demarcation point - The point at which Northwestel's responsibility for installation, repair and maintenance of telephone wiring ends (i.e., *demarcation block*).

network interface device (NID) - The *protector* for the *demarcation block* and the termination point for service drop and house wire. Also referred to as the Telephone Network Interface.

protector - An older type of *demarcation block*, these are to be replaced with a *NID* whenever encountered.

terminal block - Connects common wires from each wire run.



BUILDING OWNER'S CONSENT

NW-410

As owner of the building(s) located at:

(Street Address)

(City)

(Contact Number)

I hereby consent to the installation by Northwestel of facilities consisting of wires, cables, and other necessary fixtures and attachments in or on said building(s), whether inside or outside such building(s), other than in *conduit*, and/or other such facilities specially provided for such purposes.

Where the exterior surface of such building(s) will be damaged by placing of such necessary fixtures or attachments, it is mutually agreed that Northwestel shall not be liable.

That portion of such building(s) is described as follows:

Additional tips are listed in our
Trouble Shooting Guide
available on our web site

www.nwtel.ca

(Owner's Signature)

(Date)

(Street Address)

(City)