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**INFORMATION
about your
OVERHEAD ELECTRICAL SERVICE
ENTRANCE UPGRADE
and
XCEL ENERGIES**

First of all, thanks for considering Don's Electric to do your service entrance upgrade. I've put together this information to help you understand what's generally involved in a service change and what you might be able to expect in dealing with your power company, Xcel Energies.

A service change is generally required if you're doing remodeling or an addition which may need more power than you now have, or if you're adding a major appliance circuit, or if your present system is simply outdated or in bad condition.

The condition of your present service depends on the age of your house, and if and when it was updated in the past. It includes the meter socket, panel, circuit breaker box, and/or fuse box; and may be inside or outside the house. It also includes the conduit and wiring that goes up and attaches to the incoming overhead line from the power pole.

To do a service change, the electrical contractor must take out a permit from the city, and bring the entire service entrance up to today's Codes. Some of the equipment and wiring may already meet today's Codes, depending on when it was installed.

The new service is generally put on the outside of the house, usually in the back or side where the overhead power line is coming in. It generally has the meter socket and new panel located side by side. They also make a combination unit which has the meter and panel all in one enclosure. It's also possible, most of the time, to locate the new panel inside the house, in the basement, or in the garage; but the meter must be located outside. If you're building a room addition, it may be best to locate the new service on the addition. You can discuss these options with your electrician. It's generally most cost-effective to have the new equipment outside, but you may prefer it in another location for convenience.

What's done in a service change depends on what you presently have. If your meter and panel are outside and need to be replaced, the new equipment will generally be installed in the same location. The conduit and wiring which goes up and attaches to the incoming overhead line, known as the "riser," may also need to be replaced. The city requires that the incoming line clears the ground by at least ten feet, twelve feet if passing over a driveway. If the line is too low now, it will have to be raised. Quite often, on a single-story house, this is accomplished by running a "mast," which is a 2-inch galvanized rigid conduit up from the meter and through the roof. The overhead line then attaches to this mast. In such a case a flashing is installed on the roof where the mast penetrates it, and this is done according to Code.

Sometimes, on a two-story house, the riser can be extended and the overhead line will attach to the house at a higher point, to meet the height requirement.

If the overhead line is passing through trees, or is in an inconvenient location for some other reason, this also has to be considered when deciding where the new service entrance should be located.

If your present service is located where a room addition will be built, it's generally best to install the new service on the addition. Sometimes it can simply be moved to a different spot on the house, to allow for the addition. In rare cases, with extensive remodeling or a large addition, a temp service can be installed in the yard to provide power for the house and the construction workers, and then the old overhead power line completely removed and out of the way. Later, the new service can be installed on the house and the temp service removed. These options should be discussed with your electrician.

If your present service includes a fuse box or old breaker box located inside the house, which is outdated or inadequate, one of two things is usually done. Since all the house circuits originate from this old fuse box or breaker box, they have to be relocated or extended to the new service entrance panel. Generally what's done is known as a "by-pass." The old fuse equipment or breakers are removed, but the box itself remains. The house circuits are then extended and brought out to the new service panel, where they'll connect to the new circuit breakers. The house circuits will be basically the same as before, just extended to the new panel. The other method is to have the house circuits re-routed entirely, and the old fuse box or breaker box removed completely. This is usually a little more costly, but may be necessary if you're remodeling and want to remove the wall where the old fuse or breaker is, or if you just want it out of there for other reasons.

If your present service includes a modern panel located inside the house, and this panel meets Code, it may be possible to leave it, and use it as a "sub-panel." It would continue to contain the circuit breakers, and the entire panel would be supplied or "fed" from the new service equipment. This doesn't happen very often, but does sometimes, and should be discussed with your electrician.

The new service entrance, wherever it is located, has to be grounded. This is done by running a properly sized wire from the new panel and attaching it to the water pipe. This attachment has to be made where the water line enters the house, if at all possible. If the basement is finished there, and it's impossible to run the wire to where the water pipe enters the house without tearing up the ceiling, then it can be run to the closest accessible point. This should be discussed with your electrician. In addition to the water pipe connection, another wire is run from the new panel to a driven ground rod, which is installed near the new panel.

While the work is being done you'll be without power, usually from a few hours to most of the day. However most electricians, including us, will run a temporary line for you if you need it, and won't leave you without power overnight in any circumstances. Generally the entire job takes from one to two days, or one day for two men.

To summarize then, after the new service is completed, here's what you should have. The new meter socket and panel are installed in the location agreed upon by you and your electrician. The conduit and wiring which goes up to attach to the incoming overhead line, the "riser," is properly installed and allows the overhead line to meet the minimum height requirement. All of the old house circuits, as well as any new circuits installed, are connected properly in the new panel, and everything that was working before should now be working again. The old fuse box or breaker box(s) inside the house have become "junction box(s)," and no longer contain fuses or breakers. The covers on them are sealed and screwed shut. They have to remain accessible though in case there's ever a problem. This is known as a "by-pass." This is the case unless they were completely removed and the circuits re-routed to the new panel.

After the new service is installed, the electrician will connect it himself to the overhead incoming line. This has to be done or you'd be without power. However, there are some things you should be aware of. The electrician is normally not allowed to relocate the overhead line himself, except in certain cases. It will be left in its old location, and wires will be run from there to the new equipment. This connection, while it may look ugly, is generally out of reach and adequate for temporary usage.

Also, the electrician cannot install the meter in the new meter socket. Instead, jumpers are installed, and a temporary cover installed in the hole where the meter will go, to protect the live parts inside. A new meter will later be installed by Xcel as I'll explain.

When these jumpers are installed and the new service is temporarily energized by the electrician, he obtains permission to do this from Xcel. This is what's known as a "closed loop authorization." That way, Xcel knows you're being supplied with power without a meter. They know from the authorization when the meter was removed, and they'll know when the new meter is installed. During that time they will estimate your bill based on past usage, and on the number of days you're without a meter.

The closed loop authorization is normally good for up to seven days, though it may be extended under some circumstances with permission. During that time you should receive a letter from Xcel confirming this. The electrical contractor is responsible for getting the inspection from the building department approved during that time. When the inspector comes, he'll inspect the service and will also have to get in the house to inspect the grounding connection on the water pipe, and any inside service equipment such as sub-panels, etc. After approval, the inspector will notify Xcel that the new service has passed inspection and can be permanently connected. If not approved, the electrician must make the necessary corrections and order a re-inspection.

Xcel will then set a time to come out, install a new meter in the meter socket, relocate or replace the overhead incoming line if needed, and attach it permanently to the new service entrance equipment. And even though the closed loop authorization is only good for seven days, once it's been released by the building department, Xcel may take longer to get out to do the permanent hookups. Xcel isn't perfect, so if they don't come within a few weeks you should contact your electrician so he can remind them. When they come they won't need to get in the house, but they may have to shut off power for a few minutes. If you have a dog or a locked gate or some other reason they can't get to the meter socket, they'll leave a note asking you to call them to set a time when they can come. Or, if there's any other reason they can't do the permanent hookup, they'll leave a note. If this happens you should contact your electrician.

It's important to note that Xcel, while this service used to be free, now charges a fee of \$149.00 for a single-family dwelling service upgrade. This fee is billed directly to the home owner by Xcel, and isn't included in the cost of the electrician.

One final note, once the electrical contractor has contracted with you and obtained a permit, he's legally responsible to see to it the work gets done and is approved, both by the building department and Xcel.

If you have any other questions, please feel free to contact me.

Thanks.

Don Natelborg
Owner, Don's Electric
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