

Instructions to Employers When Planning Work in Proximity to the Energized 600 VDC Trolley Overhead System



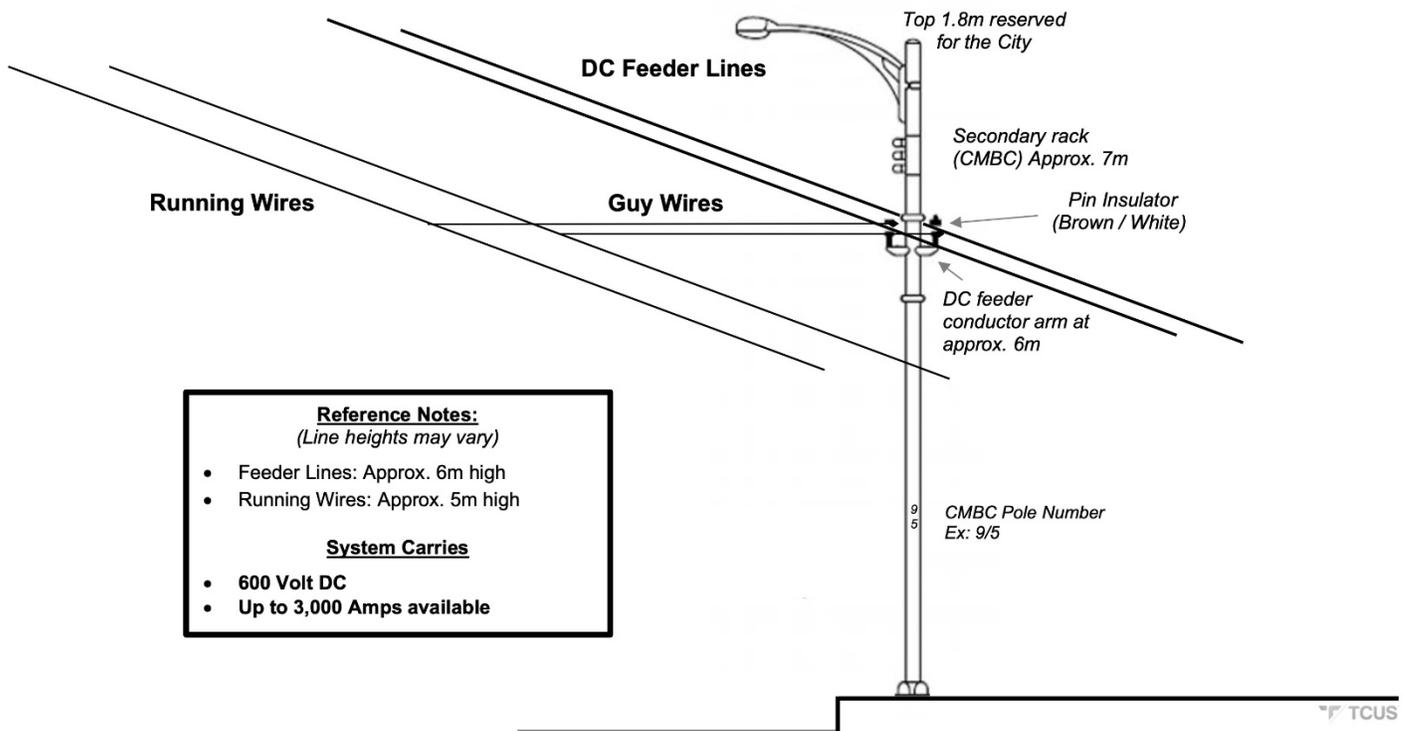
Introduction

Electric trolley buses are restricted to major routes where there are electrical catenaries or overhead to support trolley bus operation. Most routes operate in the City of Vancouver with several routes extending to UBC and one into Burnaby. There are 262 trolley buses in total and electricity is supplied from 20 Rectifier Stations and a network of 320 km of overhead wires energized to 600 volts of direct current (VDC).

Overhead feeder lines for trolley buses are mounted on power poles or lamp standards in the City of Vancouver and the City of Burnaby. They are located on city streets, often over sidewalks and close to buildings and other structures. The diagram shows a typical lamp standard and the location of the direct current (DC) feeder conductor arm. *Feeder lines* extend between adjacent lamp standards. The feeders energize the *Running wires* above the trolley buses which allow them to operate.

Trolley Overhead (TOH) Infrastructure

Typical Lamp Standard Carrying Overhead Feeder Lines



Working on and maintaining the trolley overhead (TOH) system requires licensed trades personnel with specialized skills and training to work safely and proficiently on energized trolley overhead systems. Employees of the Coast Mountain Bus Company (CMBC) Trolley Overhead Department follow a set of rules in a safety manual that contains instructions to manage the safety risks relevant to trolley overhead maintenance work hazards.

Potential Safety Risk

The electrical hazard quantified in a CMBC safety risk assessment can cause serious injury or death to persons who make contact to the energized trolley overhead lines. Even when a section of the system has been isolated, due to the nature of the electrical system, it may continue to have some hazardous residual energy on it. For these reasons only qualified CMBC tradespersons with proper training are permitted to contact and work on the system.

Employer Responsibilities

Employers are expected to conduct a proper risk assessment to anticipate the risks and hazards of work close to energized overhead trolley lines and provide the necessary training, supervision, and equipment (personal protective equipment, barriers, etc.) to keep their workers safe.

When Performing Work Near Lines is Necessary

Employers shall instruct their workers about the hazards associated with overhead trolley wires. Employers can reduce the likelihood of inadvertent contact with the trolley overhead power system by following these instructions:

At All Times:

- Ensure job planning includes the use of proper equipment, materials, and workers trained in the proper control of electrical hazards present on the trolley overhead lines.
 - When operating vehicles or equipment in the general approach boundary pose a risk of encroaching the limited approach boundary of 3 metres to 1 metre from the TOH infrastructure, the employer shall be responsible for providing an Independent Qualified Safety Watcher (IQSW) (an accredited arm's length party, satisfactory to TransLink in its sole discretion, who is knowledgeable of the electrical hazards of CMBC's trolley overhead power distribution system). The IQSW will have an unobstructed view of the trolley overhead system and always maintain clear communications with the operator during this activity.
 - Only qualified personnel (journeyman electricians, power line technicians and arborists) with proper training, tools/equipment, and authorization from their employer as well as the Manager, Trolley Overhead Power Distribution are permitted to work within the limited boundary and up to the restricted approach boundary of 0.3 metre (1 foot) without an IQSW present. These workers, however, may not fulfill the role of the IQSW.
 - **Only with special permission** from the Manager, Trolley Overhead Power Distribution, and with insulated cover-up installed and an IQSW on site, unqualified workers may be permitted to work up to 0.3 metres (1 foot) of the TOH infrastructure. Any distance less than this is an encroachment of the prohibited approach boundary, permitted only by CMBC's qualified electrical workers.

- Work performed near a section of the energized trolley overhead lines sometimes requires the use of electrical guarding equipment or isolation of that section. Only CMBC's personnel are permitted to apply insulated cover-up guards to the lines.
- Comply with WorkSafe Occupational Health and Safety Regulation (OHS) Regulation Part 19: Electrical Safety, and CMBC's Trolley Overhead Hazard Advice document.

In the Event of Contact with Overhead Trolley Lines:

- Contact CMBC Transit Communications (TCOMM) immediately at 778.593.5588 and report the overhead trolley line contact.
- Wait for CMBC Trolley Overhead Line Crew to arrive and implement corrective actions.
- Contact WorkSafeBC Call Centre at 604.276.3100 to report if this is an incident that causes an injury.

In the Event of Contact with Overhead Trolley Lines Causing a Downed Wire:

- Contact CMBC Transit Communications (TCOMM) immediately at 778.593.5588 and report the overhead trolley line contact.
- Call 911 if an emergency exists (electrical hazard, injury, fire, etc.).
- Wait for CMBC Trolley Overhead Line Crew to arrive and implement corrective actions.
- If emergency action is required to correct a condition that causes immediate threat to workers, only qualified and properly trained workers shall provide assistance.
- Shuffle 10 metres away keeping feet close together, from point of contact on the ground. If in a machine, stay put and do not touch anything until told it's safe to do so. If evacuating the machine becomes necessary, carefully hop out of the machine without contacting the ground and the equipment at the same time while keeping both feet together, and then shuffle 10 metres away.
- Secure a minimum perimeter of 10 metres around the hazard using cones, tapes, warning lights, traffic control or other means.
- Contact WorkSafeBC Call Centre at 604.276.3100 to report if this is an incident that causes an injury.

Should you require assistance in planning your work safely, please email TOHReview@translink.ca and/or call CMBC's Manager of Trolley Overhead Power Distribution at 604.561.9363. We will be happy to assist you.