

Reviewed: February 2021**Cable Demolition****PURPOSE/APPLICATION**

To provide guidance on the safe removal of cable. The procedure has been developed to provide strategies to reduce the potential for demoing an unintended cable or one that is still energized.

This procedure outlines two potential verification methods.

- 1- The "Loop Check Method" allows for verification of cables without the requirement of removing the entire cable from the tray at the start. It is appropriate for crowded tray and long complicated runs of cable.
- 2- The "Donut Method" requires cable to be removed from the tray as it is traced, this method is more labour intensive however it provides physical verification that the intended cable is being removed at each stage. It is appropriate for less crowded tray or where identified hazards dictate full physical removal prior to any cuts to the cable being made.

HAZARD SOURCES**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

- Strike minimum requirements
- Cut resistant gloves

TRAINING

- Experience with a voltage meter
- On the job mentoring on Strike's LOTO procedure

TOOLS/EQUIPMENT

- Donut (where required) either commercially produced or built from solid piece of PVC where required
- Voltage meter
- Personal lock and tag
- Hand tools
- Wire cutters
- Power tools

PRIOR ACTIVITIES

1. Assess the task hazards using the HIAC process
2. Obtain all available drawings of lines, cable demo schedule
3. Verify location of cable trays
4. Obtain all required Safe Work Permits
5. Follow Strike COP-05 Lock Out Tag Out

**SAFE JOB PROCEDURE****EI-SJP-15**

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Cable Demolition**Loop Check Method:**

| # | Job Steps | Hazards | Control Measures |
|---|---|---|--|
| 1 | Lock out and zero energy confirmation | <ul style="list-style-type: none">▪ Electrical – Work around live electrical systems, inadequate lockout▪ Flammable - Work being completed in live sites▪ Toxic – Work in live facilities | <ul style="list-style-type: none">▪ Lines to be decommissioned to be identified by Superintendent and Client Representative▪ Cable tags must be located and verified against the cable demolition schedule▪ Lines to be walked down by Strike Supervisor and Client Representative and visually confirmed▪ Line to be locked out and tagged out as per Strike COP-05▪ All workers involved in decommissioning to install personal locks (directly or through group lock box)▪ Lines shall be tested following lock out to verify the absence of energy▪ Systems to be verified free of all other forms of energy prior to start of demoing |
| 2 | Remove cables from glands at source of power (i.e. Panel) | <ul style="list-style-type: none">▪ Motion – Lacerations,▪ Motion - Sharp edges or wires from the material being connected▪ Flammable - Wrong mold for conductor size or welding material | <ul style="list-style-type: none">▪ Trace the cable from the cable tag back to power source end▪ Wear task appropriate gloves▪ Cable to be verified for zero energy using voltage meter prior to removal▪ Remove cable from the cabinet▪ Communicate the removal process with all workers involved▪ Take care not to damage existing equipment▪ Workers to be clear of the line of fire/path of removal prior to starting |
| 3 | Remove cables at other end | <ul style="list-style-type: none">▪ Motion – Lacerations,▪ Motion - Sharp edges or wires from the material being connected▪ Flammable - Wrong mold for conductor size or welding material | <ul style="list-style-type: none">▪ Identify cable location at the other end either through the cable tag or locating the▪ Verify zero energy on the cable using voltage meter▪ Remove cables from glands |
| 4 | Perform "loop check" on cable to demoed | <ul style="list-style-type: none">▪ Motion – Handling exposed cables▪ Human Factors – Communication | <ul style="list-style-type: none">▪ Worker power source to put meter leads on two wires▪ Worker at opposite end to touch wires together▪ Worker at power end to use the meter to confirm the completion of the loop |



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| # | Job Steps | Hazards | Control Measures |
|---|----------------------------|--|--|
| 5 | Pulling of cable from tray | <ul style="list-style-type: none"> ▪ Motion – Overexertion, pinch points, flying debris, sharp edges ▪ Noise – Use of power tools ▪ Electrical - Work around existing lines | <ul style="list-style-type: none"> ▪ Use of appropriate gloves ▪ Work in teams as required ▪ Start at one end of the removed cable and cut cable into appropriate lengths to be removed ▪ Minimize the potential for strain by cutting the cable into manageable lengths ▪ Hearing protection and double eye protection as required where using mechanical equipment ▪ Cable should be physically verified as it is removed (start at the end and move inward) ▪ Use appropriate tool to remove cable ties (i.e. side cutters) ▪ Take care not to damage existing cables within the tray ▪ Select the best possible body position when removing cable, where possible keep work within the “power zone” (shoulder to waist) |
| 6 | Removal of demoed material | <ul style="list-style-type: none"> ▪ Motion – Overexertion, pinch points, sharp edges | <ul style="list-style-type: none"> ▪ Remove all scrap material, clean up zip ties and jacket scraps ▪ Dispose of removed material as per client direction ▪ Use task appropriate gloves for handling scrap pieces |

Donut Method:

| # | Job Steps | Hazards | Control Measures |
|---|---------------------------------------|---|--|
| 1 | Lock out and zero energy confirmation | <ul style="list-style-type: none"> ▪ Electrical – Work around live electrical systems, inadequate lockout ▪ Flammable - Work being completed in live sites ▪ Toxic – Work in live facilities | <ul style="list-style-type: none"> ▪ Lines to be decommissioned to be identified by Superintendent and Client Representative ▪ Cable tags must be located and verified against the cable demolition schedule ▪ Lines to be walked down by Strike Supervisor and Client Representative and visually confirmed ▪ Line to be locked out and tagged out as per Strike COP-05 ▪ Lines shall be tested to verify the absence of energy ▪ All workers involved in decommissioning to install personal lock (directly or through group lock box) ▪ Lines to be checked for energy following lockout |

| # | Job Steps | Hazards | Control Measures |
|---|---|---|--|
| | | | <ul style="list-style-type: none"> Systems to be verified free of all other forms of energy prior to commencing demolition |
| 2 | Remove cables from glands at source of power (i.e. Panel) | <ul style="list-style-type: none"> Motion – Lacerations, Motion - Sharp edges or wires from the material being connected Flammable - Wrong mold for conductor size or welding material | <ul style="list-style-type: none"> Trace the cable from the cable tag back to power source end Wear task appropriate gloves Cable to be verified for zero energy using voltage meter prior to removal Remove cable from the cabinet Communicate the removal process with all workers involved Take care not to damage existing equipment Workers to be clear of the line of fire/path of removal prior to starting |
| 3 | Installation of "donut" | <ul style="list-style-type: none"> Electrical - Misidentification of line Motion - Sharp edges | <ul style="list-style-type: none"> Donut to be installed at the energy source line of cable Donut to be installed for size of existing cable Multiple cables require the use of multiple donuts (one per cable) |
| 4 | Pulling of cable from tray | <ul style="list-style-type: none"> Motion – Overexertion, pinch points Electrical - Work around existing lines | <ul style="list-style-type: none"> Use of appropriate gloves Work in teams as required Move donut down line as cable pulled from tray to ensure the intended cable is removed Do not cut cable until the entire cable has been removed from the tray |
| 5 | Cut/Remove cable at equipment/load end | <ul style="list-style-type: none"> Electrical - Shock, Power tools Motion - Flying Debris, Sharp edges, Rotating equipment | <ul style="list-style-type: none"> Cable to be verified again for zero energy using voltage meter prior to cut Cable to be cut behind the donut to ensure it is the intended cable Donut and cable to be visible and clearly separated from other cables Task appropriate gloves Double eye protection required for rotating equipment Workers to be clear of the line of fire prior to cut Hearing protection to be used as required Housekeeping/disposal of excess wire/cable/tie wraps |
| 6 | Removal of demoed material | <ul style="list-style-type: none"> Motion – Overexertion, pinch points, sharp edges | <ul style="list-style-type: none"> Remove all scrap material, clean up zip ties and jacket scraps Dispose of removed material as per client direction Use task appropriate gloves for handling scrap pieces |

Examples of the donut method:



Figure 1 - Installation of "Donut"



Figure 2 – Removal of Multiple Cables



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REGULATIONS

Alberta OH&S Code

- Part 14 – Lifting and handling loads
- Part 15 – Managing the control of hazardous energy
- Part 19 – Powered mobile equipment
- Part 21 – Rigging

Manitoba Code

- Part 16 – Machines, Tools and Robots
- Part 22 – Powered Mobile Equipment
- Part 23 – Cranes and Hoists
- Part 38 – Electrical Safety

Saskatchewan

- Part 11 – Powered Mobile Equipment
- Part 14 – Rigging
- Part 16 – Entrances, Exits and Ladders
- Part 30 – Additional Protection for Electrical Workers

BC OHS Regulations

- Part 11 Fall Protection
- Part 13 Ladders, Scaffolds and Temporary Work Platforms
- Part 15 Rigging
- Part 16 Mobile Equipment
- Part 19 Electrical Safety

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|---------------|---------------------------|-----------------------------|-------|----------------------|
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