

PART 1 - GENERAL

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| <u>1.1 GENERAL REQUIREMENTS</u> | .1 | Refer to drawings for wiring type required under different applications. |
| <u>1.2 MEASUREMENT AND PAYMENT</u> | .1 | Payment for provision of all items specified in this Section shall be by Lot Price. No separate payment will be made for work specified in the Contract Documents. All costs incurred by Contractor in meeting with the requirements of this Section shall be included in the bid price for the Work. |
| <u>1.3 SUBMITTALS</u> | .1 | Submittals, product data and shop drawings shall be in accordance with Specification Sections 01 33 00 and 26 05 00. |
| <u>1.4 REFERENCES</u> | .1 | Canadian Standards Association (CSA)
.1 CSA C22.2 No. 0.3-09, Test Methods for Electrical Wires and Cables.
.2 CAN/CSA-C22.2 No. 131-07(R2012), type TECK 90 Cable. |

PART 2 - PRODUCTS

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| <u>2.1 BUILDING WIRES</u> | .1 | Conductors: stranded for 10 AWG and larger. Minimum size: 12 AWG. |
| | .2 | Copper conductors: size as indicated, with 1000 V insulation of cross-linked thermosetting polyethylene material rated RW90 XLPE and RWU90 XLPE, as indicated. Provide RWU90 XLPE rated cable for underground wiring. Related to new service entrance feeders and site lighting circuits. RWU90 XLPE not required under interior floor slabs. |
| | .3 | Copper conductors: size as indicated, with thermoplastic insulation type TWU rated at 1000 V. |
| <u>2.2 ARMOURED CABLES</u> | .1 | Conductors:
.1 Insulated, copper, size as indicated. |
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- 2.2 ARMOURED CABLES (Cont'd)
- .2 Type: AC90.
 - .3 Type: ACWU90 TECK90 - PVC flame retardant jacket over thermoplastic.
 - .4 Aluminum armour meeting requirements of Vertical Tray Fire Test of CSA C22.2 No. 0.3 with maximum flame travel of 1.2 m.
 - .5 Connectors: according to the cable size and type.
- 2.3 CABLE CONNECTORS
- .1 Provide watertight connectors for cable terminations on Teck 90 cables.
 - .2 Medium duty terminals with pressure plate, sectional, channel mounted.
 - .3 Square-tongue crimp type, self insulated connectors at equipment without pressure plate terminals.
- 2.4 CONTROL CABLES
- .1 Wire type as recommended for the particular application by Standards or the manufacturer.
 - .2 600 V type: stranded annealed copper, sizes as indicated with PVC insulation type TW TWH TW-40C, butyl rubber insulation type RW75 R90, polyethylene insulation cross-linked polyethylene type RW75 (x-link) R90 (x-link) RW90 (x-link) ethylene-propylene rubber insulation type RW75 (EP) R90 (EP) RW90 (EP) with shielding of magnetic tape non-magnetic tape wire braid metallized tapes over each conductor each pair of conductors all conductors and overall covering of thermoplastic jacket thermosetting jackets with sheath of aluminum lead interlocked armour and jacket over sheath of PVC thermosetting compound.
- 2.5 VFD CABLES
- .1 Cables suitable for VFD application and to ensure noise suppression to the System.
- 2.6 NEUTRAL SUPPORTED CABLE NS90
- .1 Quadruplex unjacketed neutral supported cable. Three insulated phase conductors around a fully rated neutral conductor.
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2.6 NEUTRAL
SUPPORTED CABLE
NS90
(Cont'd)

- .2 Phase conductor: aluminum alloy 1350-H19, hard-drawn, compact concentric-lay-stranded. Black cross-linked polyethylene (XLPE) insulation, 90°C temperature rating. Size as indicated in drawing.
- .3 Neutral conductor: aluminum conductor steel reinforced for use with phase conductors. Fully rated.

PART 3 - EXECUTION

3.1 FIELD QUALITY
CONTROL

- .1 Perform tests in accordance with Section 26 05 00.
- .2 Perform tests using method appropriate to site conditions and to approval of Departmental Representative and local authority having jurisdiction over installation.
- .3 Perform tests before energizing electrical system.

3.2 GENERAL CABLE
INSTALLATION

- .1 Install cable in trenches in accordance with Section 26 05 43.01.
- .2 Lay cable in cable trays in accordance with Section 26 05 43.01.
- .3 Terminate cables in accordance with Section 26 05 32.
- .4 Cable Colour Coding: to Section 26 05 00.
- .5 Conductor length for parallel feeders to be identical.
- .6 Lace or clip groups of feeder cables at distribution centres, pull boxes, and termination points.
- .7 Wiring in walls: typically drop or loop vertically from above to better facilitate future renovations. Generally wiring from below and horizontal wiring in walls to be avoided unless indicated.
- .8 Branch circuit wiring for surge suppression receptacles and permanently wired computer and electronic equipment to be 2-wire circuits only, i.e. common neutrals not permitted.

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| <u>3.2 GENERAL CABLE
INSTALLATION
(Cont'd)</u> | .9 | Provide numbered wire collars for control wiring. Numbers to correspond to control shop drawing legend. Obtain wiring diagram for control wiring. |
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| <u>3.3 INSTALLATION OF
BUILDING WIRES</u> | .1 | Install wiring as follows: <ul style="list-style-type: none">.1 In conduit systems in accordance with Section 26 05 34..2 In cable troughs in accordance with Section 26 05 43.01..3 In underground ducts in accordance with Section 26 05 43.01..4 In trenches in accordance with Section 26 05 43.01.5 In surface and lighting fixture raceways in accordance with Section 26 50 00. |
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| <u>3.4 INSTALLATION OF
TECK CABLE</u> | .1 | Install 3-1000.5 V cables. |
| | .2 | Group cables wherever possible on channels. |
| | .3 | Install cable concealed, securely supported by straps and hangers. |
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| <u>3.5 INSTALLATION OF
MINERAL-INSULATED
CABLES</u> | .1 | Run cable exposed, securely supported by straps. |
| | .2 | Support 2 hour fire rated cables at 1 m intervals. |
| | .3 | Make cable terminations by using factory-made kits. |
| | .4 | At cable terminations use thermoplastic sleeving over bare conductors. |
| | .5 | Where cables are buried in cast concrete or masonry, sleeve for entry and exit of cables. |
| | .6 | Do not splice cables. |
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| <u>3.6 INSTALLATION OF
ARMOURED CABLES
(AC-90)</u> | .1 | Group cables wherever possible. |
| | .2 | Use permitted only for work in movable partitions and vertical power supply drops to lighting fixtures. |
| | .3 | Install cable in trenches in accordance with Division 26. |
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3.6 INSTALLATION OF
ARMOURED CABLES
(AC-90)
(Cont'd)

- .4 Lay cable in cabletroughs in accordance with Division 26.
- .5 Terminate cable in accordance with Section 26 05 32.

3.7 INSTALLATION OF
CONTROL CABLES

- .1 Install control cables in conduit / underground ductbank/direct burial as indicated.
- .2 Ground control cable shield.

3.8 INSTALLATION OF
NON-METALLIC
SHEATHED CABLE

- .1 Install cables as specified in contract documents.
- .2 Install straps and box connectors to cables as required.
- .3 Use permitted in wood stud construction only.

3.9 EXCAVATION AND
BACKFILLING

- .1 Provide all excavation and backfilling for the cables as required according to site conditions.