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REVISIONS: UPDATED LEGAL ACKNOWLEDGEMENT FORM. FD MAR '16

DESIGNED J. AGNOLIN	RECOMMENDED  F. DENNERT	ACCEPTED  G. REIMER	ENGINEER OF RECORD 	NOTICE FROM THE EXECUTIVE VICE PRESIDENT TRANSMISSION AND DISTRIBUTION AND CUSTOMER SERVICE	
DISTRIBUTION STANDARDS 		ISSUED: MAR 2016 REPLACES: MAY 2004 ORIGINALLY ISSUED: NOV 1980		PAGE 1 OF 2	ES43/53/54/55/65 A1-01.01 ^R 4

Scope

This manual is one of a series containing standards for construction of the BC Hydro electrical distribution plant within the service area of BC Hydro. A new distribution plant shall be designed, constructed, owned, operated, maintained and repaired to these standards.

Purpose of Standards

BC Hydro objectives require standardization to:

- a) Ensure uniform safety requirements comply with BC statutes and regulations.
- b) Provide uniform system reliability.
- c) Provide uniform operating practices.
- d) Permit economic bulk purchasing of materials.
- e) Achieve optimum life cycle cost of plant construction.
- f) Effect efficient quality assurance.

Responsibility

The Distribution Standards Department prepares these standards and verifies that specified plant and procedures will perform adequately under all normally expected conditions encountered throughout the province of British Columbia. These standards are approved by Professional Engineers. It is the responsibility of BC Hydro Managers to ensure that the standards are followed unless abnormal conditions are encountered that require variations. These variations should be kept to a minimum and their performance shall be the responsibility of the Professional of Record in charge of the project, who will record and seal the variation based on satisfactory qualifications and experience to do so. As per the latest revision of the BC Hydro Distribution Owner's Engineer Guide, these variations must be accepted by BC Hydro's Owner's Engineer.

Use of Stock Materials

The electrical distribution plant covered by these standards is built using stock materials approved by a Professional Engineer as required by law. The use of non-stock materials for special and unusual situations must be approved by Distribution Standards or the BC Hydro Engineer responsible for the project.

Revisions to Manual

These standards are revised from time to time to improve the safety, performance, workability, cost effectiveness or appearance of the plant. The existing plant built to previous standards need not be updated unless so specifically advised by BC Hydro. When maintenance or other work, such as voltage conversion or conductor change is being done, updating plant to current standards is encouraged.

Mailing Addresses

The manual has been issued to a corporation or firm rather than to an individual. The corporation or firm is responsible for the safekeeping of the manual, and for keeping it current. Changes of address or in number of copies required must be reported promptly.

Suggestions for changes in the manual, or required changes of address may be made on the pre-addressed comment sheet included in the Manual and with each issue of revision.

REVISIONS: UPDATED LEGAL ACKNOWLEDGEMENT FORM. FD MAR '16

DESIGNED J. AGNOLIN	RECOMMENDED  F. DENNERT	ACCEPTED  S. REIMER	ENGINEER OF RECORD  F. U. DENNERT PROFESSIONAL ENGINEER BRITISH COLUMBIA	NOTICE FROM THE EXECUTIVE VICE PRESIDENT TRANSMISSION AND DISTRIBUTION AND CUSTOMER SERVICE		
DISTRIBUTION STANDARDS BC Hydro		ISSUED: MAR 2016 REPLACES: MAY 2004 ORIGINALLY ISSUED: NOV 1980		PAGE 2 OF 2	ES43/53/54/55/65 A1-01.02	R 4



Information Bulletin:

Equipment and Connection Changes for Secondary Underground Customer Services, 120/240 V up to 600 A, Single-Phase

1.0 Items Covered

Customer-owned secondary service equipment.

ES53 S1-01.01 SECONDARY CUSTOMER SERVICES SINGLE PHASE UP TO
600 A 120/240 V REVENUE METER SOCKET CONNECTIONS

2.0 Overview

This is a revision to the original bulletin, EA2015-006 R0, issued in January 2015.

The majority of 120/240 V services for single family dwellings, rated for 200 A or less, have a relatively low fault withstand and interrupting rating of 10 kA or less, including the corresponding BC Hydro self-contained revenue meters. Current development trends for high density subdivisions necessitate the use of larger pad-mounted transformers, such as 100 kVA or 167 kVA, with high available fault currents, which could be located a short distance away from the customer services. New distribution standards have been developed to provide a method of limiting the high available fault currents to below 10 kA using current limiting fuses. For further information, refer to the Distribution Standards engineering report, [ETR No. 040 Presence of High Fault Currents on 120/240 V Customer Services and Proposed Mitigation](#).

Following the release of EA2015-006 R0, field evaluation revealed that the current limiting fuses require more space for the service cable bending and termination than estimated by design. Accordingly, all LPT service connections requiring the current limiting fuses shall be installed on the BC Hydro standard pyramid pad. No more than two supply services (two 200 A single services or two 400 A multiple main services) shall be connected to the LPT secondary buses via the current limiting fuses.

The BC Safety Authority reported recently that BC Hydro customers and contractors are using the "Remote Disconnect" service by BC Hydro to carry out regulated electrical work on 200 A customer services with a Smart Meter with a WiMax radio link. This practice poses a safety concern and violates WorkSafe BC and BC Electrical Code rules.

3.0 Action

All customer underground secondary single-phase services up to 600 A 120/240 V supply shall be installed in compliance with the BC Electrical Code and ES53 S1-01 standard. In addition, all services shall comply with *BC Hydro Requirements for Secondary Revenue Metering Installations (750 Volts or Less)*:

<https://www.bchydro.com/accounts-billing/moving-electrical-connections/electrical-connections/distribution-standards.html#revenuemetring>

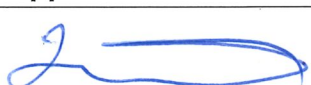
Prior to any installation, the customer shall submit the proposed service equipment drawings to the BC Hydro designer, clearly showing that BC Hydro requirements shall be met:

- a. All customer service equipment shall have a separate utility cable compartment, bus extensions and cable lugs inside the utility compartment, and locking and sealing provisions of all unmetered conductors and bus work, according to the ES54 S1-01 standard for service cable terminations.
- b. The BC Hydro "Remote Disconnect" switch on 200 A Smart Meters does not meet the requirements for safety isolation according to the WorkSafeBC rules and BC Electrical Code Rule 2-304 and shall not be used to carry out regulated work.
- c. No more than two services (200 A single or 400 A multiple main) per LPT may have current limiting fuses, and they shall be installed on a pyramid pad only.
- d. The customer service main for single 400 A or 600 A services shall be rated for 22 kA minimum fault withstand and interrupting.
- e. All residential type 400 A and 600 A 120/240 V services shall be installed inside a detached power shed, or an outdoor type pad-mounted power kiosk or an external closet attached to a dwelling. For all such installations, BC Hydro personnel shall have unrestricted access directly from outside. However, BC Hydro shall not accept 400 A and 600 A residential services installed in an electrical room inside a dwelling, regardless of any unrestricted access for BC Hydro personnel.
- f. Commercial and industrial type 400 A and 600 A 120/240 V service equipment located inside a customer building is acceptable.

4.0 Distribution Standards Contact

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5.0 Approval

Recommended		Reviewed		Approved	
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Date:	2017-07-17	Date:	2017-07-17	Date:	2017-07-17