Canadian Standards Association
Mississauga, Ontario
To the Part I Committee

Subject No. 3086 Chair: G. Lobay Date: March 27, 2003

Title: Request for an Interpretation, Definition of "Service Box"

Submitted by: A.Z. Tsisserev of The City of Vancouver on September 13, 2002 (on behalf of the Subcommittee on CSA C22.2 No. 0.19.

Original Request:
Is it intended by the referenced definition that a service box that is a part of an approved service entrance equipment, must be represented by a separate compartment of this service entrance equipment and must contain only a fused service switch or a circuit breaker and associated equipment that by the virtue of it's operation has to be connected to the line side of the main switch or the circuit breaker (such as phase-failure or phase-reverse relays)?

Note from Section 0 Chair:
The above is the original request as received from the submitter. Based on feedback from Section 0 members, it became necessary to revise the request on two occasions, in order to get the wording just right. The following is the final request (approved by the submitter) and the one on which the subcommittee deliberated.

Request:
For equipment such as a combination panelboard, switchgear or other similar equipment marked "Suitable for use as service entrance equipment", does a service disconnecting means such as a fused switch or circuit breaker within the equipment, have to be located in a separate compartment in order for the compartment to be deemed a "Service box" as defined in Section 0 of the CEC?

Section 0 Chair's Comments:
For reference, the definition currently reads:

> **Service box** means an approved assembly consisting of a metal box or cabinet constructed so that it may be effectually locked or sealed, containing either service fuses and a service switch or a circuit breaker, and of such design that either the switch or circuit breaker may be manually operated when the box is closed.

For an interpretation request, Rule C10.2 requires that the response of this subcommittee be either "yes" or "no". We can of course, discuss the issue in the usual manner to arrive at one or other of these answers.

I might also remind members about the following Rule:

C10.6 Interpretations shall be based on the literal text and not on the intent.

Reasons for Request:
S/C on the CSA C22.2 No. 0.19 has been recently formed to develop safety principles and objective based requirements for the service entrance equipment.

During the deliberations by the S/C a question was raised whether the entire service equipment could be treated as a "service box" in accordance with the Part I definition, or a separate compartment containing only a main fused disconnect switch or a circuit breaker and specific relays (where applicable)must be provided in order to qualify as the "service box" conforming to Part I.

Presently relevant requirements of the CSA standards that regulate service entrance equipment (Clauses 4.17.2 - 4.17.11 of the CSA C22.2 No. 14; Clauses 7.4.1.1; 7.4.1.2 and 7.4.5.1 of the CSA C22.2 No. 29 and Clauses 4.9.1 - 4.9.7 of the CSA C22.2 No. 31) mandate construction of a service box or a service compartment which must be physically separated from a distribution portion of this equipment.

These, present requirements of the referenced Part II standards are based on the assumption that the definition of a "service box" in Part I would require such a compartmentation.

If, however, this assumption is not accurate and the entire service entrance equipment could be considered as a "service box" by the Part I definition, then an additional barrier - to separate a service compartment/service box from the remainder of the equipment would not be necessary and the above referenced requirements of the applicable Part II standards could be amended accordingly.

The question of a necessity for such a compartmentation from the safety perspective was posed by the equipment manufacturers to the CACES at their June 2001 meeting in St. Johns.

CACES members have unanimously responded by presenting the following basic safety principles which substantiate a need to separate a service compartment from the rest of a service entrance equipment:

1) To maintain protection against exposure to live parts and restrict access to live parts to authorized persons only;

2) To minimize damage of the electrical components located on the load side of the service disconnecting means from the impact of the fault current that is available at the supply terminals of the service box;

3) To manually isolate circuits on the load side of the service disconnecting means;

4) To allow use of the grounded service conductor for bonding of service equipment.

Supporting Information:
CSA Certification Division provided the following background information:
I would like to provide some information which may be useful as background information. Certification has been certifying equipment that complies with the definition which is a single

unit. Examples of this are fused switches evaluated to C22.2 No. 4 Enclosed Switches and enclosed circuit breakers evaluated to C22.2 No. 5 Circuit Breakers. The device has all of the elements required to qualify the device as a "Service Box", that is;

- a manually switchable device with overcurrent protection
- an external operating handle
- a neutral assembly with the appropriate number and size of terminals to accommodate all of the connections that are required for a grounded system
- an enclosure
- a means to lock the operating mechanism in the OFF position

We also certify combination units such as service entrance panelboards, which consist of a Service Box with all of the elements described above that is part of an overall device that includes a panelboard. The Service Box and the panelboard share a common enclosure wall. The only penetrations from the Service Box to the panelboard are those that are essential for the transfer of power to the panelboard, i.e. main bus bars and a neutral bus bar. All of the elements relative to the Service Box would reside in the Service Box enclosure, and all distribution elements reside in the panelboard enclosure.

We require that the cover of the Service Box be independent of the distribution section cover as the Service Box cover must be able to remain closed when the panelboard portion is being accessed.

Summary of Subcommittee Deliberations:
Everyone voted YES.

Chair's Comments:
None.

Subcommittee Recommendation:
The Section 0 Subcommittee response is YES to the request for interpretation.