

**ELECTRICAL UTILIZATION
SAFETY
ORDERS. EFFECTIVE
JANUARY 1, 1917**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649312665

Electrical Utilization Safety Orders. Effective January 1, 1917 by Various

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

VARIOUS

**ELECTRICAL UTILIZATION
SAFETY
ORDERS. EFFECTIVE
JANUARY 1, 1917**

Electrical Utilization
Safety Orders

TH
152
C2
1914

Issued by the
Industrial Accident Commission
of the
State of California

EFFECTIVE JANUARY 1, 1917

CALIFORNIA STATE PRINTING OFFICE
SACRAMENTO
1916

27128



**INDUSTRIAL ACCIDENT COMMISSION
OF THE STATE OF CALIFORNIA**

525 Market Street, San Francisco
423 Union League Building, Los Angeles

A. J. PILLSBURY,
WILL J. FRENCH,
MEYER LISSNER,
Commissioners.

JOHN R. BROWNELL,
Superintendent of Safety.



- Max A. Schmidt, Schmidt Lithograph Company, representing the California Employers Federation, San Francisco.
- F. Emerson Hoar, gas and electrical engineer, State Railroad Commission, San Francisco.
(R. M. Vaughan and P. J. Noerager, State Railroad Commission, alternates to Mr. Hoar.)
- George Sorenson, secretary, Local Union No. 537, International Brotherhood of Electrical Workers, San Francisco.
- H. M. Hansen, business agent, Local Union No. 404, International Brotherhood of Electrical Workers, San Francisco.
- Arthur Elken, Local Union No. 6, International Brotherhood of Electrical Workers, San Francisco.
- W. H. Urmy, Local Union No. 6, International Brotherhood of Electrical Workers, San Francisco.
- J. Morgenthaler, Pacific District Council, International Brotherhood of Electrical Workers, San Francisco.
- R. H. Manahan, city electrician, Los Angeles.
- H. Conger Bowers, consulting electrical engineer, Southern California Electrical Contractors and Dealers, Los Angeles.
- H. M. Scott, International Brotherhood of Electrical Workers, Los Angeles.
- R. L. Eltringham, electrical engineer, Industrial Accident Commission.
- John R. Brownell (secretary), superintendent of safety, Industrial Accident Commission.

These Orders are based on the Electrical Utilization section of the Proposed National Electrical Safety Code prepared by the United States Bureau of Standards, which was adopted with certain changes to meet local conditions and for purposes of abridgment.

Acknowledgment is made of the assistance rendered by R. T. Joslin, engineer, Pacific Telephone and Telegraph Company, and A. W. Douglass, division equipment superintendent, Western Union Telegraph Company, who aided in the preparation of the Orders relative to telephone and telegraph equipment.

ELECTRICAL UTILIZATION SAFETY ORDERS.

DEFINITIONS OF SPECIAL TERMS.

Order 700.

(a) **ELECTRICAL SUPPLY EQUIPMENT** means any equipment which produces, modifies, regulates, controls, or safeguards a supply of electrical energy. The supply equipment used in connection with signaling systems is not included under the following conditions:

- (1) When the voltage does not exceed 150.
- (2) When the voltage does not exceed 400, and the power transmitted does not exceed three kilowatts.

(b) **ELECTRICAL SUPPLY STATION** means any building, room or space within which is located electrical supply equipment.

This includes generating stations and substations, and generator, storage battery and transformer rooms, but excludes isolated transformer vaults on private premises.

(c) **ELECTRICAL SUPPLY LINES** means those conductors and their necessary supporting or containing structures which are located entirely outside of buildings, and used for transmitting a supply of electrical energy.

Telephone and other signal lines are not included (except electric railway signal systems when considered and maintained as supply lines throughout).

(d) **SIGNAL LINES** means lines for public or private signal or communication service, and devoted exclusively

to the transmission of signals or intelligence, which operate at not exceeding 400 volts to ground, or 750 volts between any two points of the circuit, and the transmitted power of which does not exceed 150 watts. Below 150 volts no limit is placed on the capacity of the system.

Telephone, telegraph, messenger-call, clock, fire or police alarm, and other systems conforming with the above are included. Lines used for signaling purposes, but not included under the above definition are considered as supply lines of the same voltage and are to be so run. Signal lines not for public use coming under the above definition may be run and operated as supply lines if desired.

(e) UTILIZATION EQUIPMENT means those devices and their wiring which utilize electrical energy for mechanical, chemical, heating, lighting, testing or similar purposes, and are a part neither of supply equipment nor of supply lines.

(f) VOLTAGE OR VOLTS means the highest effective voltage between the conductors of the circuit concerned, except that in grounded multiwire circuits, not exceeding 750 volts between outer conductors, it means the highest effective voltage between any wire of the circuit and the ground.

1. In ungrounded low voltage circuits, voltage to ground means the voltage of the circuit.
2. When one circuit is directly connected to another circuit of higher voltage (as in the case of an autotransformer), both are considered as of the higher voltage, unless the circuit of lower voltage is permanently grounded. Direct connection

implies electrical connection as opposed to connection merely through electromagnetic or electrostatic induction.

(g) **CIRCUIT** means a conductor or system of conductors through which an electric current is intended to flow.

(h) **GROUND** means connected to earth, either intentionally or accidentally.

(i) **GROUNDING SYSTEM** means a system having an effective electrical connection to earth. This ground connection may be at one or more points.

"Effective," as herein used, means a connection to ground of sufficiently low impedance and high current-carrying capacity to prevent any current which may be in the ground conductor from causing a harmful voltage to exist between the grounded conductors and neighboring exposed conducting surfaces which are in good contact with the earth, or with neighboring surfaces of the earth itself, under the most severe conditions which are liable to arise in practice.

(j) **PERMANENTLY GROUND** means such an effective connection to earth (by use of an underground system of metallic pipe mains or other suitable means) as described in section (i).

(k) **CURRENT CARRYING PART** means a part intended to be connected in an electric circuit to a source of electric supply.

(l) **ALIVE OR LIVE** means electrically connected to a source having a potential difference, or electrically charged so as to have a potential difference from the earth.