

**ELECTRICAL STATION
SAFETY
ORDERS; EFFECTIVE
DECEMBER 1, 1918**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649245970

Electrical Station Safety Orders; effective December 1, 1918 by Industrial Accident Commission of the State of California

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

INDUSTRIAL ACCIDENT COMMISSION OF THE STATE OF CALIFORNIA

**ELECTRICAL STATION
SAFETY
ORDERS; EFFECTIVE
DECEMBER 1, 1918**

TK
152
C2
1918

Electrical Station Safety Orders

Issued by the

Industrial Accident Commission

of the

State of California

EFFECTIVE DECEMBER 1, 1918

California State Printing Office
Sacramento
1918

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

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

A. J. PILLSBURY, Chairman.

WILL J. FRENCH,

MEYER LISBNER,

Commissioners.

JOHN B. BROWNELL,
Superintendent of Safety.



SUMMARY OF THE SAFETY PROVISIONS
of the

Workmen's Compensation, Insurance and Safety Act.

Being Chapter 176 of the Laws of 1913 as Amended by Chapter 607 of the Laws of 1915, and Chapter 586 of the Laws of 1917.

Sections 33 to 54, inclusive, of the Workmen's Compensation, Insurance and Safety Act give the Industrial Accident Commission power to make and enforce safety orders, rules and regulations, to prescribe safety devices, and to fix safety standards. It also empowers the Commission to appoint advisors who shall, without compensation, assist the Commission in establishing standards of safety. The Commission may adopt and incorporate in its general orders such safety recommendations as it may receive from such advisors.

The Commission, carrying out its plan of obtaining the best practical ideas to incorporate in its Safety Orders, asked various interests to serve on a committee to draft Electrical Station Safety Orders.

COMMITTEE ON ELECTRICAL STATION SAFETY ORDERS:

- Rec'd 1255.3-8-30 A.V.M.*
- J. P. JOLLYMAN (chairman), engineer of electrical construction, Pacific Gas and Electric Company, representing the National Electric Light Association, San Francisco.
 - J. A. LIGHTHIFE, electrical engineer, Southern California Edison Company, representing the National Electric Light Association, Los Angeles.
 - J. A. KOONTZ, electrical engineer, Great Western Power Company, representing the National Electric Light Association, San Francisco.
 - M. C. MCKAY, general superintendent, Sierra & San Francisco Power Company, representing the National Electric Light Association, San Francisco.
 - WALTER T. BIVINS, chief engineer electrical equipment, United Railroads of San Francisco, representing the California Electric Railway Association, San Francisco.
 - S. H. ANDERSON, electrical superintendent, Pacific Electric Railway, representing the California Electric Railway Association, Los Angeles.
 - R. H. MANAHAN, city electrician, City of Los Angeles, representing the League of California Municipalities, Los Angeles.

- ARTHUR KEMPSTON, chief, department of electricity, City of San Francisco, representing the League of California Municipalities.
- R. T. JOSLIN, engineering department, representing the Pacific Telephone & Telegraph Company, San Francisco.
- J. C. FRICKE, representing the Western Union Telegraph Company, San Francisco.
- H. C. SHAW, division electrical engineer, representing the Postal Telegraph Cable Company, San Francisco.
- JOHN HOOD, San Francisco engineer, General Electric Company, representing the manufacturers of electrical equipment, San Francisco.
- R. F. BEHAN, Westinghouse Electric & Mfg. Co., representing the manufacturers of electrical equipment, San Francisco.
- J. MORGENTHAUER, president Pacific District Council No. 1, International Brotherhood of Electrical Workers, San Francisco.
- C. A. ELMORE, president Cable Splicers Union No. 37, International Brotherhood of Electrical Workers, Oakland.
- HENRY BOYEN, Linemen's Union and Station Operators' Union No. 151, International Brotherhood of Electrical Workers, San Francisco.
- H. WARNEE, Local Union No. 61, International Brotherhood of Electrical Workers, Los Angeles.
- WILLIAM L. RHYS, representing the International Vice-President of the International Brotherhood of Electrical Workers, San Francisco.
- J. F. POLLARD, gas and electrical department, State Railroad Commission, San Francisco.
- B. D. DEXTER, gas and electrical department, State Railroad Commission, San Francisco.
- R. L. ELTRINGHAM, electrical engineer, Industrial Accident Commission, San Francisco.
- JOHN R. BROWNELL (secretary), superintendent of safety, Industrial Accident Commission.

These Orders are based on the Electrical Stations section of the 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 abridgement.

ELECTRICAL STATION SAFETY ORDERS.
DEFINITIONS OF SPECIAL TERMS.

Order 1400.

The following definitions give the meanings of some of the terms occurring in these orders. Terms not defined will be understood to have their usual meanings.

(a) *Electrical supply equipment* means equipment which produces, modifies, regulates, controls, or safeguards a supply of electrical energy. Similar equipment, however, is not included where used in connection with signaling systems under the following conditions:

- (1) Where the voltage does not exceed 150.
- (2) Where the voltage is between 150 and 400 and the power transmitted does not exceed 3 kilowatts.

(b) *Electrical supply station* means any building, room, or separate inclosure within which is located electrical supply equipment and which is accessible as a rule only to properly authorized persons.

This includes generating stations and substations and generator, storage battery, and transformer rooms, but excludes manholes and 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 are used for transmitting a supply of electrical energy.

Does not include open wiring on buildings in yards or similar locations where spans are less than 20 feet, and all the precautions required for stations or utilization equipment, as the case may be, are observed.

Railway signal lines above 400 volts to ground are always supply lines within the meaning of these orders, and below 400 volts may be considered as supply lines, if so run and operated 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.

Telephones, 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, and if consistently so run.

(e) *Utilization equipment* means equipment, devices, and connected wiring, which utilize electrical energy for mechanical, chemical, heating, lighting, testing, or similar purposes and are not a part of supply equipment, supply lines, or signal 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.

In ungrounded, low-voltage circuits, voltage to ground means the voltage of the circuit.

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 distinguished from connection merely through electromagnetic or electrostatic induction.

(g) *Circuit* means a conductor or system of conductors through which an electric current is designed to flow, and connected equipment.

(h) *Grounded* means connected to earth or to some extended conducting body which serves instead of the earth, whether the connection is intentional or accidental.

(i) *Grounded system* means a system having a permanent and effective electrical connection to earth. This ground connection may be at one or more points.

"Effective," as herein used, means a connection to earth of sufficiently low impedance and high current-carrying capacity to prevent any current in the ground wire 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 grounded* means such an effective connection to the 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. Noncurrent-carrying parts are those not intended to be so connected.