### DEPARTMENT OF COMMERCE

#### BUREAU OF STANDARDS

S. W. STRATTON, Director

# INDEX TO PARTS 1, 2, AND 3 OF CIRCULAR NO. 54, "THE NATIONAL ELECTRICAL SAFETY CODE, SECOND EDITION"

Rules 100 to 185, inclusive, are for stations.

Rules 200 to 299, inclusive, are for lines, including complete segregated specifications for crossings, conflicts and common use of poles.

Rules 300 to 393, inclusive, are for utilization.

Rules 400 to 585, inclusive, in part 4, are not indexed because of the general brevity of these rules and the simplicity of their arrangement, and because of the fact that rules pertaining to any one subject are grouped together and should be considered collectively. Thus an index would simply resolve itself into an alphabetical list of section titles, which are now readily referred to in the table of contents, pages 267 to 270, inclusive.

Kille No.
Abandoned lines 204
Additions, application of the rules to
Alive or live Def. 12
Alternative methods of construction, general
for signal lines not for public use
Aluminum conductors
Anchors. See Guys.
Application of rules
Arc welders
Arcing in hazardous locations 123, 307
Arcing or moving parts, protection from 123, 167a, 307, 325, 341, 380d
Authorization, entrance into inclosures
Authorized or qualified Def. 20
Automatic
Automatic cut-outs 160-169
Barriers, where required 115, 121, 122b, e, 153d, e, 156, 174, 306d, 333
Belts, guarding 121
Branch connections
Bridges, clearances of conductors from 248
conductors crossing under 248, 260
Buckarms, obstruction to working space 243d, 253a
Buildings, attachments to and clearances from

13760°-17-1

Ruie No.
Cables, messenger
metal sheathed 153c, 246e, 249h
portable
separation from other conductors
Cars, cranes, and elevators
Ceilings, inclosing walls and
Circuit
Circuit breaker. See Cut-out.
Clearances (see also Separation and working space) of conductors from bridges 248
from buildings
from other conductors at crossings or conflicts
from polec
from milwaya, modewaya and footwaya at an anime
nom ranways, roadways and rootways at crossings 240a, c, 280c
on any one pole line 241–244, 240
vertical and lateral. 240
of ground wires from other conductors and supports
of lamps 256a
of poles:
from hydrants and signal pedestals 250a, 270C
from rails
of switches, automatic cut-outs, lightning arresters and transformer con-
nections
Climbing space on poles (see also Working space) 246a, 249, 253a, Def. 39
Common use of poles, by different supply lines of all voltages
by supply lines of all voltages and signal lines
grades of construction required for cases of 2109, 214-210
Concrete noles
Conductors Def 20
contract attached to bridges
algorification
clearances for ( <i>see also</i> clearances)
general construction requirements
111doors
trough
fastenings
fire-alarm lines
for cars, cranes and elevators
for signal lines over railways 221e, 280, 281d, e
for signal lines over contact conductors
for stations 150–157
for utilization
identification of 208a, 296d
lateral
line Def. 30
loading on
tables Tables 22, 23, 24 App. A and B
location, underground.
materials, for overhead lines.
minimum sizes, for overhead lines
properties
protection
sags
stress
tables of

## Index

Rule No.
Conductors, taking up slack in 223
tension in
twisted pair
underground 296, 297, 298
vertical 243c, 1, 246, 249g, Def. 34
See also Clearances.
Conduit Def. 43
for cars, cranes and elevators
grounding 207b
grounding or isolating service
in damp or hazardous locations 314b
in stations 153a, b, 154
on poles 246e, f, g
underground-
installation 295
location and accessibility 290
Conflicting or in conflict Def. 41
Conflicts (see also Common use), grades of construction required for all cases 210a,
214-219
separation of pole lines to avoid
signal lines with supply lines of all voltages
supply lines of all voltages with signal lines
Connectors, for signs
portable devices, cables and
Constant current lines, classification 278
Control of cars, cranes and elevators
motors and converters
signs
Controllers (see also Switches) 160-169, 320-327
Copper for conductors
properties
table of
Coverings, acid-resistive 135
Cranes, cars and elevators 380-384
Crossarms, for signal lines at crossings 280h, 281c
installation 231e
loads on
materials and minimum dimensions 231a, 280h, 281c
strength requirements 231, 233b
Crossings, clearances of conductors at 24c
grades of construction required for all kinds 210-210
signal lines over railways 280, 281
signal lines over supply lines of all voltages
signal lines over trolley contact conductors
special short span
supply lines of all voltages over railways
supply lines of all voltages under railways
supply lines of all voltages over signal lines
supply lines of all voltages over supply lines
supply lines over trolley contact conductors
Current-carrying part. Def. 11
Cut-outs and fuses 160-169, 320-327, Def. 16

			Rı	ile No.
Dead.			D	ef. 13
Dead-ending conductors			233b, 266,	274b
Defective equipment				111
Defective lines				204
Deteriorating agencies, protecting against			I2	5, 342
Disconnectors	16	60-160,	181, 323, I	Def.18
Discussions of the rules.	Pa	ges 26,	55, 182, 24	7, 306
Ducts.			D	ef. 42
grading of				201
material, sizes and finish				204
,,				-94
Electrical supply equipment			T	Def T
lines				Def a
station			נ ד	Jof a
Floration as a means of isolation			 	Jel. 2
Elevation as a means or isolation			110	, 170C
Elevators, cars, cranes and				0-384
Equipment, defective	• • • • • • •	• • • • • • •		III
electrical supply	• • • • • •		I	Jef. 1
installation of, on poles	•••••	• • • • • • •	• • • • • • • •	253
in stations		1	12, 140–14	3, 172
utilization	• • • • • •		<b></b> 1	Def. 5
Examination of materials and devices				302
Exciters, installation, protection, and classification			<b></b>	124d
Exemptions to the rules			101, 20	1, 301
Existing installations, application of the rules to			101, 20	1, 301
Exits				106
Explosion proof			De	ef. 27
Exposed.			De	ef. 24
Extensions, application of the rules to			101,20	1, 301
Feeders, railway			27	6,277
Fire-alarm lines				288a
Fire-fighting appliances.				107
Fixtures and signs, lighting			26	0-267
Flexible supports				266h
Floors floor openings passageways and stairs				105
for storage battery rooms			• • • • • • • • •	105
inculating See Mate		•••••	· · · · <b>· · · ·</b>	132
Foundations for line supports			02.40	0070
Furnacions for fine supports			···· 234a	-235a
Furnaces and welders		•••••		0-352
Fuses and other cut-outs		I	00-109, 32	0-327
Grades of construction required for given conditions (	see also	Cross	ings and	
conflicts)		670:07	11123 and	08:00
Ground resistance	1 219, 2	201a, 27	3, 200-203	, 207a
Ground wires arrangement of an poles				460 f
minimum sizes			2	400,1
Crounded			····· 9,	3, 393
Grounded			I	of
Grounded permanently		• • • • • •	D	el. 10
Grounded system.	• • • • • •		1	Jer. 9
Grounding, arc-lamp suspension chains				306
arresters for signaling systems			• • • • • • • •	393
circuits.	I	40, 141	. 175. 2078.	304b

			Ru	le No.
Grou	unding, guy wires			252C
	in hazardous locations 123b,	125b, 3	07C,	342b
	instrument cases			176f
	method of, general		90	to 97
	for lightning arresters, circuits and equipment	2	07a,	304a
	for utilization equipment			3 <b>0</b> 4a
	in stations		1138	ı, 163
	motor frames			343d
	noncurrent-carrying metal parts, general 113b, 168, 20	5c, 207	b, 30	4c, d
	of cars, cranes and elevators			381
	of furnaces and welders			351
	of lighting fixtures and signs		360,	363c
	of lightning arresters			183
	of protable devices			271
	of rotating equipment		124.	125h
	of signal equipment	288f 20	09-2	202
	service conduit	2001, 39	04 2	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
	shoothing		 те	$\frac{310}{22}$ h
	suitab and out out accor		· ±3	3a, 0
	awitch boord from a		100	5, 320
	switchboard frames	• • • • • • •	175	, 334
<b>C</b>	transformer cases			142
Gua		• • • • • •	2490	1, 209
Gua		•••••	. D	eI. 21
Gua	raing, arcing or suddenly moving parts 123a, 101, 1	57, 325,	350,	3800
	conductors 153, 154	, 247d, e	, 312	2-314
	control circuits	• • • • • • •	••	340d
	guy wires.	• • • • • • •	•••	2 521
	lamps in series circuits	· · <b>·</b> · · · ·		. 366
	live parts, general	15, 122,	3 <b>00</b> t	), 3 <b>0</b> 6
	in hazardous locations 123a, 125,	154, 161	, 307	, 314
	in storage-battery rooms		• •	133
	_ near the ground			205a
	of cars, cranes and elevators			380
	of furnaces and welders			352
	of lighting fixtures			362
	of lightning arresters			184
	of motors		3438	, b, c
	of signs			263b
	of switchboards		170	5. 335
	of switches and cut-outs	1220	l. 160	). 327
	underground		·, ;	207
	manhole openings			202h
	motors in hazardous locations		2 4 1	2930
	moving parts general		341	., 342
	of cars cranes and elevators		• •	121
	of aircuit breakers			300u
	of motora		107	, 3 <sup>2</sup> 5
			•••	344
	noncurrent-carrying metal parts			205C
	pole equipment	• • • • • • •	•••	253b
	poles, from fires and abrasion	• • • • • • •	. 25	oc, d
	to prevent climbing		• • •	205b
	signal apparatus	• • • • • • •	390	, 391
	temporary wiring	•••••	• •	156
	13760°-17-2			

Rul	e No.
Guys, general requirements	251
for signal lines over railways 28of	i, g, e
for special transverse strength 233, 235d	l, 266
guards	2 5 2 i
insulators	252
HandholeDe	ef. 45
Hazardous locations, classification	304C
conductors in 154	, 314
motors in	341
portable conductors and lamps in	374C
sparing or arcing parts in 123, 161	, 307
switches or cut-outs in	321
transformers in	142
Hazards, conditions of	210a
lee loading See Loading	
Identification of conductors 208 and	5 272
equipment	1313
poles	1, 332
Dilumination ages and subways	200
rinumination, cars and subways	304
general	103
storage-battery rooms.	134
switchboards	1,331
	:1. 23
Inclosing sparking of arcing parts 123	, 101
Induced voltage, protection against	392
Inductance and eddy currents, precautions to avoid	313
Innammable nyings and gas 123, 101, 307, 3140, 321	1,341
Inspection	1, 303
Instruments, grounding cases of	1701
InsulatedDe	25
InsulatingDe	21. 20
covering for live parts	306
handles and shields for switches.	169b
mats and platforms. See Mats.	
noncurrent-carrying metal parts	113d
Insulation, for lighting fixtures	361
for portable devices	370
for series lamp supports	66b, c
Insulators, for guy and span wires and lamp supports	252
for signal lines at crossings 28	Boh, j
pins 231c, d, 233b, 266a	, 280i
specifications	26 <b>0</b> b
IsolatedDe	ef. 22
Isolating, conductors 152, 154b, 205a, c, 312,	314a
lamps in series circuits	366
live parts; general	306
by elevation	305d
by inclosure 102c, 12	3, 161
moving parts	167
service conduit	318
storage batteries	130
Isolation by elevation	of an

Joint use of poles. See Common use of poles.	Rule No.
Joints, taping ends and	157, 317
Lamps, guarding or isolating	366
insulators in suspension chains	252h, 366
on poles	256
safe access to arc	367
wiring	246d-I
Lateral conductors	Def. 33
Lateral working space	Def. 40
Levels, relative, determining grade of construction	214-219
effect on climbing space	249c, d
governed by voltage classification	210b
previously established	243g, h
recommended	24 <b>0</b> b
standardization of	270b
Lighting, cars and subways	384
fixtures and signs	360-367
stations	103
storage-battery rooms	134
Lightning arresters, general	180-185
for utilization	4a, 308c, 393
on poles	253
Lightning protection wires	. 221f, 222a
Line conductor	Def. 30
Line supports. See Poles.	Ū
Lines, electrical supply	Def. 3
open	Def. 31
Live or alive	Def. 12
Loading, map of the United States En	d of App.A
on conductors	220, 222
tables of resultant Table	e 22 App. A
tables of transverse	e 23 App. B
tables of vertical Table	e 24 App. B
on line supports	, 232, 286a-5
Longitudinal strength, special.	266
Longitudinal stress in conductors 222.	, 266, 286a-6
Manholes	203, Def. 44
Manual	Def. 14
Map, loading, for the United States En	ad of App.A
Mats, floors, and platforms, insulating (where required)	115b.c.
1222a, 124b, 153e, 160c, 176b, 306b, 313c, 3270	. 335a. 343b
Meter loops, protection of	311
Motors and motor-driven machinery	340 -344
Motors, speed control of	120
Moving parts, guarding. See Guarding.	
National Electrical (fire) Code	anth anth
New installations application of the rules to	, 2010, 302D
	3010
Outdoor stations	TO20

Panelboards330-335, Def. 52Pendant and portable conductors155, 316, 374Permanently groundedDef. 10Pins, insulator, general requirements231c, d, 233b, 266a, 286ifor signal lines at crossings280ifor signal lines at crossings280iPole faceDef. 38Pole faceDef. 38Poles and towers, calculation of size, for given loadApp. B-2carrying capacity235ccalculationApp. B-3tables26, 27 App. Bclearances from hydrants and signal pedestals250a, 270cclearances from rails250c, cdgounding205c, cdguying235dhardware234iidentification235d, 235b, cdguying235c, ddguying235c, ddprotective covering for230, 232, 286a, App. Bminimum requirements234h, 235e, 286d, 281aobstructions on240jprotective covering for235jresisting momentsApp. B-rbtable ofTable 25 App. Bstepping205 strengthstepping205 strengthPortable devices, cables, and connectors370-374Position of conductors.246ffor ground wires246fof conductors.5.6 Ji, 307, 310, 311, 344, 350, 361of longitudinal runs240fof conductors240fof conductors240gof word poles240gof word poles240gof word poles
Pendant and portable conductors.155, 316, 374Permanently grounded.Def. toPins, insulator, general requirements.231c, d, 233b, 266a, 286ifor signal lines at crossings.280iPlatforms, insulating.See Mats.Pole face.Def. 38Poles and towers, calculation of size, for given load.App. B-2carrying capacity.235ccalculationApp. B-3tables.26 a, 270cclearances from hydrants and signal pedestals.250a, 270cclearances from rails.262, 280adeterioration.205cguarding of, from abrasion and fires.230, 232, 286a, App. Bminimum requirements.230, 232, 286a, App. Bminimum requirements.234h, 235e, 280d, 28taobstructions on.230, 232, 286a, App. Bminimum requirements.234h, 235e, 280d, 28taobstructions on.230, 232, 286a, App. Bminimum requirements.234h, 235e, 280d, 28taobstructions on.230, 232, 286a, App. Btable of.Table 25 App. Bstepping.235breinforcement.235bresisting moments.App. B-rewiring on.246d, epp. B-rewiring on.246d, epp. B-rewiring on.246d, epp. B-rewiring on.246d, epp. B-reviring on.246d, epp. B-reof conductors.See Levels, relative.Prime movers, speed control of120Protection by warning signs.246fof conductors.150, 151, 307, 310, 3
Permanently grounded.Def. 10Pins, insulator, general requirements.231c, d, 233b, 266a, 280ifor signal lines, at crossings.280iPlatforms, insulating.See Mats.Pole face.Def. 38Poles and towers, calculation of size, for given load.App. B-2carrying capacity.235ccalculationApp. B-3tables.26, 27 App. Bclearances from hydrants and signal pedestals.250a, 270cclearances from rails.205cgrounding.205cguying.235dclearances from abrasion and fires.230c, 232, 280adeterification233dhardware.234h, 235e, 280d, 281aobstructions on.230, 232, 286a, App. Bminimum requirements.234h, 235e, 280d, 281aobstructions on.240jprotective covering for.234hresisting moments.App. Bbtable of370-374Position of conductors.370-374Position of conductors.240fof conductors. <t< td=""></t<>
Pins, insulator, general requirements231c, d, 233b, 266a, 280i for signal lines at crossings280iPlatforms, insulating.See Mats.Pole faceDef. 38Poles and towers, calculation of size, for given load.App. B-2 carrying capacitycarrying capacity235c calculationcalculationApp. B-3 tablestables26, 27 App. B clearances from hydrants and signal pedestals250a, 270c clearances from railsgrounding205c guarding of, from abrasion and fires.205c 205c guarding of, from abrasion and fires.230, 232, 286a, App. B minimum requirements234i 235d, c 205b 235d, cbodding on230, 232, 286a, App. B 236b 236bbodding on230, 232, 286a, App. B 234h, 235e, 286d, 281a 234h, 235e, 286d, 281a 234h, 235e, 286d, 281a 235b resisting moments.249j 234h, 235e, 286d, 281a 235b<
for signal lines at crossings
Platforms, insulating. See Mats. Def. 38   Pole face. Def. 38   Poles and towers, calculation of size, for given load. App. B-2   carrying capacity. 235c   calculation App. B-3   tables. 260, 27 App. B   clearances from hydrants and signal pedestals. 260, 27 App. B   clearances from rails. 250a, 270c   clearances from rails. 260, 27 App. B   grounding. 205c, 280a   deterioration. 235b, c   grounding. 205c, d   guying. 235c, d   dading on from abrasion and fires. 230, 232, 286a, App. B   minimum requirements. 234h, 235e, 280d, 28ra   obstructions on. 230b   reinforcement. 235b   reinforcement. 235b   stepping. 205b   strength. 233, 234, 235, 266, App. B-2   wiring on. 233, 234, 235, 266, App. B-2   wiring on. 2401   protective covering for 233, 234, 235, 266, App. B-2   wiring on. 233, 234, 235, 266, App. B-2   wiring on. 2401
Pole face.Def. 38Poles and towers, calculation of size, for given load.App. B-2carrying capacity235ccalculationApp. B-3tables.26, 27 App. Bclearances from hydrants and signal pedestals.250a, 270cclearances from rails.262, 280adeterioration235b, cgrounding.205cguarding of, from abrasion and fires.250c, dguying.235caddeterification235bcleading on230, 232, 286a, App. Bminimum requirements.234h, 235c, 280d, 28taobstructions on240jprotective covering for.234ireinforcement.235bresisting moments.App. B-rbtable of240jprotective covering for.235bresisting moments.240jprotective covering for.205bstrength.205bstrength.205bstrength.246d, ePortable devices, cables, and connectors.370-374Position of conductors.246ffor ground wires.246fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.240fof conductors.246fof conductors.246fof conductors.246fof conductors.246fof conductors.246fof conductors.246fof conductors.246fof vertical conductors.246fof vertical conductors.246f
Poles and towers, calculation of size, for given loadApp. B-3carrying capacity235ccalculationApp. B-3tables26, 27 App. Bclearances from hydrants and signal pedestals.26, 27 App. Bclearances from rails262, 280adeterioration235b, cgrounding from abrasion and fires.250cguyring.235c, 230cadding of, from abrasion and fires.230, 232, 286ahardware234iidentification230, 232, 286a, App. Bminimum requirements.234h, 235c, 280d, 281aobstructions on230, 232, 286a, App. Bminimum requirements.244h, 235c, 236d, 281aobstructions on240jprotective covering for.234ireinforcement.235bresisting moments.240jrotective covering for.233, 234, 235, 266, App. B-rbtable of.Table 25 App. Bstepping.205bstrength.235bstrength.235b, 236, 246d, 281aobstructions on246d, 235breinforcement.235bstepping.205bstrength.235b, 236, 246a, App. B-rbtable of.210conductors.370-374Position of conductors.264 App. B-2wring on246d, PPrime movers, speed control of.120Protection by warning signs.248ffor ground wires246fof conductors.246fof conductors.246fof iongitudina
carrying capacity235ccalculationApp. B-3tables26, 27 App. Bclearances from hydrants and signal pedestals250a, 270cclearances from rails262, 280adeterioration235b, cgrounding205cguarding of, from abrasion and fires205cguying235dhardware234iidentification208bloading on230, 232, 286a, App. Bminimum requirements234h, 235e, 280d, 28raobstructions on249jprotective covering for234jreinforcement235btable ofTable 25 App. Bstepping235, 234, 235, 266, App. B-table ofTable 27 App. B-table ofTable 27 App. Bstepping235bstrength235, 234, 235, 266, App. B-table of120Portable devices, cables, and connectors370-374Position of conductors.262 Levels, relative.Prime movers, speed control of120Protection by warning signs248ffor ground wires246fof conductors150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs297of vertical conductors297of vertical conductors240gof wood poles256capeial for conductors240fPulleys, guarding of121
calculationApp. B-3tables26, 27 App. Bclearances from hydrants and signal pedestals.250a, 270cclearances from rails26, 27 App. Bclearances from rails260, 280adeterioration235b, cgrounding205cguarding of, from abrasion and fires250a, 270cduring of, from abrasion and fires205cguarding of, from abrasion and fires230, 232, 286a, App. Bminimum requirements230, 232, 286a, App. Bminimum requirements234h, 235e, 280d, 281aobstructions on240jprotective covering for234ireinforcement233breinforcement233, 234, 235, 266, App. B-table ofTable 25 App. B-stepping205bstrength246d, ePortable devices, cables, and connectors370-374Position of conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs240jof signal lines240jof signal lines240jof signal lines240jof vertical conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs240jof vertical conductors.240jof vertical conductors.240jof vertical conductors.240jPulleys, guarding of.240dPulleys, guarding of.240d
tables26, 27 App. Bclearances from hydrants and signal pedestals250a, 270cclearances from rails262, 280adeterioration235b, cgrounding235c, cguarding of, from abrasion and fires250c, dguying235dhardware234iidentification230, 232, 286a, App. Bminimum requirements230, 232, 286a, App. Bminimum requirements234h, 235e, 280d, 28raobstructions on230, 232, 286a, App. Breinforcement233bresisting moments249jprotective covering for234ireinforcement235bresisting momentsApp. B-rbtable of233, 234, 235, 266, App. B-2wiring on243j, 235, 266, App. B-2wiring on240jPortable devices, cables, and connectors370-374Position of conductors.262Protection by warning signs248ffor ground wires246fof conductors246fof longitudinal runs240jof signal lines246fof underground live parts249jof signal lines249jof word poles249jof word poles249jof word poles249jof vertical conductors240fPulleys, guarding of240fPulleys, guarding of240fPulleys, guarding of240f
clearances from hydrants and signal pedestals.250, 270clearances from rails262, 280adeterioration.235b, cgrounding205cguarding of, from abrasion and fires.250c, dguying235dhardware.234iidentification230, 232, 286a, App. Bminimum requirements.234h, 235e, 280d, 281aobstructions on.230, 232, 286d, App. Bminimum requirements.234i, 235e, 280d, 281aobstructions on.240jprotective covering for.233jreinforcement235bresisting moments.App. B-rbtable ofTable 25 App. Bstepping.205 strength.stepping.233, 234, 235, 266, App. B-2wiring on.246d, ePortable devices, cables, and connectors.370-374Position of conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.240jof signal lines.240jof wood poles.240fPulleys, guarding of.240fPulleys, guarding of.240fPulleys, guarding of.121
clearances from ryinnes and signal percessas2308, 2700clearances from rails.262, 280adeterioration.235b, cgrounding.205cguarding of, from abrasion and fires.250c, dguying.235dhardware.234iidentification.230, 232, 286a, App. Bminimum requirements.234i, 235e, 280d, 281aobstructions on.230, 232, 286d, App. Bminimum requirements.234ireinforcement.235breisting moments.App. Btable of.Table 25 App. Bstrength.233, 234, 235, 266, App. B-2wiring on.246d, ePortable devices, cables, and connectors.370-374Position of conductors.246fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.240fof signal lines.240pof vertical conductors.240pof signal lines.240pof underground live parts.240pof vertical conductors.240pof vertical conductors.240pof vertical for conductors. <td< td=""></td<>
deterioration.202, 260adeterioration.235b, cgrounding.205cguarding of, from abrasion and fires.25cc, dguying.230ahardware.234iidentification.208bloading on .230, 232, 286a, App. Bminimum requirements.234h, 235e, 280d, 28raobstructions on230bprotective covering for.249jprotective covering for.234ireinforcement.235bresisting moments.App. Btable ofTable 25 App. Bstepping.240bstepping.230bsterngth.233, 234, 235, 266, App. B-2wiring on.246d, ePortable devices, cables, and connectors.370-374Position of conductors.240fProtection by warning signs.248ffor ground wires.246fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.240fof signal lines.240fof underground live parts.240fof wood poles.240gof wood poles.240fPulleys, guarding of.240fPulleys, guarding of.240g
deterioration.2350, cgrounding .205cguarding of, from abrasion and fires.250c, dguying.235dhardware234iidentification.208bloading on230, 232, 286a, App. Bminimum requirements.234i, 235e, 280d, 28raobstructions on.240jprotective covering for.234ireinforcement.235btable ofTable 25 App. Bstepping.205bstrength233, 234, 235, 266, App. B-2wiring on246d, ePortable devices, cables, and connectors.370-374Position of conductors.See Levels, relative.Prime movers, speed control of120Protection by warning signs.248ffor ground wires.240fof signal lines.240fof signal lines.240fof wood poles.240gof wood poles.240fPulleys, guarding of.240fPulleys, guarding of.121
grounding .205cguarding of, from abrasion and fires.2 30cguying.235dhardware.234iidentification.208bloading on230, 232, 286a, App. Bminimum requirements.234h, 235e, 280d, 281aobstructions on.230, 232, 286a, App. Bprotective covering for.234ireinforcement.235bresisting moments.App. B-rbtable ofTable 25 App. Bstepping.205bstrength.233, 234, 235, 266, App. B-2wiring on.246d, ePortable devices, cables, and connectors.370-374Position of conductors.See Levels, relative.Prime movers, speed control of.120Protection by warning signs.248ffor ground wires.240fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.249fof signal lines.297of vertical conductors.297of wood poles.251fspecial for conductors.251fspecial for conductors.251fspecial for conductors.240fPulleys, guarding of.121
guarding of, from abrasion and hres.2 3500, dguying.2 3350hardware2 341identification2 300, 2 32, 2 86a, App. Bminimum requirements2 341, 2 350, 2 321, 2 86a, App. Bobstructions on2 300, 2 32, 2 86a, App. Bprotective covering for2 341reinforcement2 350table of2 350stepping2 350stepping2 350strength2 350, 2 32, 2 86a, App. Bnuming on2 350resisting momentsApp. B-rbtable ofTable 25 App. Bstepping2 33, 2 34, 2 35, 2 66, App. B-2wiring on2 46d, ePortable devices, cables, and connectors370-374Position of conductors.2 460Prime movers, speed control of1 20Protection by warning signs2 48ffor ground wires2 49fof conductors1 50, 151, 307, 310, 311, 344, 350, 361of longitudinal runs2 49fof signal lines2 80fof underground live parts2 97of vertical conductors2 40gof wood poles2 51fspecial for conductors2 406Pulleys, guarding of1 21
guying.235dhardware.234iidentification.208bloading on230, 232, 286a, App. Bminimum requirements.234h, 235e, 280d, 281aobstructions on.234i, 235e, 280d, 281aobstructions on.234jprotective covering for.234jreinforcement.235bresisting moments.App. B-rbtable of.Table 25 App. Bstepping.205bstrength.233, 234, 235, 266, App. B-2wiring on.246d, ePortable devices, cables, and connectors.370-374Position of conductors. See Levels, relative.120Protection by warning signs.246fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.249hof signal lines.249gof wood poles.257fspecial for conductors.249fPulleys, guarding of.211
hardware.234iidentification.208bloading on230, 232, 286a, App. Bminimum requirements.234h, 235e, 28od, 281aobstructions on.234h, 235e, 28od, 281aobstructions on.249jprotective covering for.234ireinforcement.235bresisting moments.App. B-1btable of.Table 25 App. Bstepping.205bstrength.233, 234, 235, 266, App. B-2wiring on.246d, ePortable devices, cables, and connectors.370-374Position of conductors.See Levels, relative.Prime movers, speed control of.120Protection by warning signs.248fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.249hof signal lines.297of vertical conductors.249gof wood poles.251fspecial for conductors.240fPulleys, guarding of.121
identification.208bloading on
loading on230, 232, 286a, App. Bminimum requirements234, 235e, 280d, 281aobstructions on249jprotective covering for234ireinforcement235bresisting momentsApp. B-1btable ofTable 25 App. Bstepping205bstrength233, 234, 235, 266, App. B-2wiring on246d, ePortable devices, cables, and connectors.370-374Position of conductors.See Levels, relative.Prime movers, speed control of120Protection by warning signs.246fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.249fof signal lines.249fof underground live parts.297of vertical conductors.249gof wood poles.251fspecial for conductors.240fPulleys, guarding of.121
minimum requirements.234h, 235e, 28od, 28raobstructions on249jprotective covering for.234ireinforcement235bresisting moments.App. B-rbtable ofTable 25 App. Bstepping.205bstrength233, 234, 235, 266, App. B-2wiring on246d, ePortable devices, cables, and connectors.370-374Position of conductors.See Levels, relative.Prime movers, speed control of120Protection by warning signs.246fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.249hof signal lines.249cof wood poles.249cspecial for conductors.249cPulleys, guarding of.121
obstructions on249jprotective covering for234ireinforcement235bresisting momentsApp. B-1btable ofTable 25 App. Bstepping205bstrength233, 234, 235, 266, App. B-2wiring on246d, ePortable devices, cables, and connectors.370-374Position of conductors.See Levels, relative.Prime movers, speed control of120Protection by warning signs.248ffor ground wires240fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.249hof signal lines.297of vertical conductors.249gof wood poles.251fspecial for conductors.240fPulleys, guarding of.121
protective covering for.234ireinforcement.235bresisting moments.App. B-rbtable ofTable 25 App. Bstepping.205bstrength.233, 234, 235, 266, App. B-2wiring on246d, ePortable devices, cables, and connectors.370-374Position of conductors.See Levels, relative.Prime movers, speed control of120Protection by warning signs.248ffor ground wires.246fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.249hof signal lines.297of vertical conductors.249gof wood poles.251fspecial for conductors.246dPulleys, guarding of.121
reinforcement235bresisting momentsApp. B-1btable ofTable 25 App. Bstepping205bstrength233, 234, 235, 266, App. B-2wiring on233, 234, 235, 266, App. B-2wiring on246d, ePortable devices, cables, and connectors.370-374Position of conductors.See Levels, relative.Prime movers, speed control of120Protection by warning signs.248ffor ground wires246fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.249hof signal lines288fof underground live parts.297of vertical conductors.249gof wood poles.251fspecial for conductors.246dPulleys, guarding of.121
resisting moments.App. B-1btable ofTable 25 App. Bstepping.205bstrength.233, 234, 235, 266, App. B-2wiring on233, 234, 235, 266, App. B-2wiring on246d, ePortable devices, cables, and connectors.370-374Position of conductors.See Levels, relative.Prime movers, speed control of120Protection by warning signs.248ffor ground wires.246fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.249hof signal lines.297of vertical conductors.249gof wood poles.251fspecial for conductors.246dPulleys, guarding of.121
table ofTable 25 App. Bstepping.205bstrength.233, 234, 235, 266, App. B-2wiring on246d, ePortable devices, cables, and connectors.370-374Position of conductors.See Levels, relative.Prime movers, speed control of120Protection by warning signs.248ffor ground wires.246fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.249hof signal lines.249fof wood poles.249gof wood poles.251fspecial for conductors.246dPulleys, guarding of.121
stepping.205bstrength.203, 234, 235, 266, App. B-2wiring on.246d, ePortable devices, cables, and connectors.370-374Position of conductors.370-374Position of conductors.248ffor ground wires.248ffor ground wires.246fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.249hof signal lines.249fof vertical conductors.249fof wood poles.251fspecial for conductors.251fspecial for conductors.246dPulleys, guarding of.121
strength233, 234, 235, 266, App. B-2wiring on246d, ePortable devices, cables, and connectors.370-374Position of conductors.See Levels, relative.Prime movers, speed control of120Protection by warning signs.248ffor ground wires.246fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.249hof signal lines.249fof vertical conductors.249fof wood poles.251fspecial for conductors.240fPulleys, guarding of.121
wiring on.246d, ePortable devices, cables, and connectors.246d, ePosition of conductors.See Levels, relative.Prime movers, speed control of.120Protection by warning signs.248ffor ground wires.246fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.249hof signal lines.249fof vertical conductors.249fof wood poles.249fof wood poles.251fspecial for conductors.240fPulleys, guarding of.121
Wining on240d, cPortable devices, cables, and connectors.370–374Position of conductors.See Levels, relative.Prime movers, speed control of120Protection by warning signs.248ffor ground wires.246fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.249hof signal lines.288fof underground live parts.297of vertical conductors.249gof wood poles.251fspecial for conductors.246dPulleys, guarding of.121
Position of conductors.See Levels, relative.Prime movers, speed control of120Protection by warning signs.248ffor ground wires.246fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.249hof signal lines.288fof underground live parts.297of vertical conductors.249gof wood poles.251fspecial for conductors.240dPulleys, guarding of.121
Position of conductors.See Levels, feative.Prime movers, speed control of .120Protection by warning signs.248ffor ground wires.246fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.249hof signal lines.288fof underground live parts.297of vertical conductors.249gof wood poles.251fspecial for conductors.240dPulleys, guarding of.121
Prime movers, speed control of120Protection by warning signs.248ffor ground wires.246fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.249hof signal lines.288fof underground live parts.297of vertical conductors.249gof wood poles.251fspecial for conductors.240dPulleys, guarding of.121
Protection by warning signs.248tfor ground wires.246fof conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.249hof signal lines.288fof underground live parts.297of vertical conductors.249gof wood poles.251fspecial for conductors.246dPulleys, guarding of.121
for ground wires. 246f of conductors. 150, 151, 307, 310, 311, 344, 350, 361 of longitudinal runs. 249h of signal lines. 288f of underground live parts. 297 of vertical conductors. 249g of wood poles. 251f special for conductors. 246d Pulleys, guarding of. 121
of conductors.150, 151, 307, 310, 311, 344, 350, 361of longitudinal runs.249hof signal lines.288fof underground live parts.297of vertical conductors.249gof wood poles.251fspecial for conductors.246dPulleys, guarding of.121
of longitudinal runs.249hof signal lines.288fof underground live parts.297of vertical conductors.249gof wood poles.251fspecial for conductors.246dPulleys, guarding of.121
of signal lines.288fof underground live parts.297of vertical conductors.249gof wood poles.251fspecial for conductors.246dPulleys, guarding of.121
of underground live parts.297of vertical conductors.249gof wood poles.251fspecial for conductors.246dPulleys, guarding of.121
of vertical conductors
of wood poles
special for conductors
Pulleys, guarding of 121
Qualified or authorized Def. 20
Railway feeders (see also Conductor, contact)
Railways, crossings with. See Crossings.
Reconstruction
Reconstruction, application of rules to
Renairs, general
Deteting agginment
NO[21110 E111101E11

|--|

	Rule No.
Sag, apparent at any point	Def. 37
apparent, of a span	Def. 36
normal	Def. 35
Sags, for service leads	273b, d, e
of fire-alarm lines	288a
of signal lines 22	1e, 280m, 282a
recommended normal 223, 280	5m, 282a, 288a
tables 280m, Tables 12,	13, 14 App. A
Scope of rules	0, 100, 200, 300
Separation of conductors (see also Clearances) on any one pole line	241 to 244
on bridges	<b>2</b> 48e
of pole lines to avoid conflict	
Separation of live parts on switchboards	··· 174, 333
Service	Def. 32
Service leads, cabled	273e
conductors for	221d
grades of construction for	273b, c, d
installation	
sags	273b, d, e
Short-span crossing construction	
Signal apparatus	390-393
Signal lines (see also Grades)	Def. 4
alone	
classification	2100
crossing over important railways	. 213a, e, 280
crossing over trolley contact conductors	213c, d, e, 282
crossing over unimportant railways	. 213D, e, 281
crossing supply lines.	
in connict with supply lines	
no commonly used poles with supply lines	210C, 288g
which have taken on the character of supply lines.	200, 207
Signs and lighting fixtures	270-279
Signs worning	300-307
Space climbing	2050, 2401
lateral working	Def 40
Span wires insulating and mechanical guards (see also Guys)	Del. 40
Speed-control and stopping devices	252,270
Splices and taps	2672 2681
Stairs, headroom and handrails.	Toth c
Steel towers and poles, strength (see also Poles)	224
Storage batteries	120-125, 208a
Strength, conductors, See Conductors,	130 133, 3000
construction at crossings.	266. 267. 274
crossarms, pins and conductor fastenings	1. 233, 266, 280
steel poles and towers	
wood and concrete poles	
requirements for guys	2348, 2358
requirements for line supports	233. 287a
Stresses, allowable in steel.	2349
allowable in wood poles 2	35, App. B-1b
tables of, in conductors	10. 20 App. A

	- Rule	No.
Substantial		f. 19
Subway and car lighting		384
Supply equipment, electrical	D	ef. 1
lines, electrical	De	ef. 3
station, electrical	De	ef. 2
Supply lines (see also Grades), arrangement in general		270a
clearances for		275
crossing under railways		260
crossing over railways		-267
crossing over signal lines	268.	260
in conflict with signal lines	284	28-
in rural districts		205
in urban districts	•••••••••••••••••••••••••••••••••••••••	2/2
over tralley contact conductors	•••••••••••••••••••••••••••••••••••••••	2/1
special strength requirements	- 66	273
Special strength requirements		274
Switchboard	Der	. 51
Switchboards and panelboards		-335
Switches	Def	. 17
arrangement	• • • • • • • • • • • • • • • • • • • •	206
character and manipulation		164
on poles	•••••••••••••••••••••••••••••••••••••••	253
where required	162, 163, 166,	322
Switches and cut-outs, general	160-169, 310b, c, 320-	-327
for cars, cranes and elevators		382
for outdoor signs		364
Tags	Def	. 53
Taping ends and joints		317
Telephone and other signal apparatus.		-303
Temporary installations, application of the rules to		010
Temporary wiring		322
Tensions in conductors, tables.	Ap1	5. A
Tests of materials and devices	204.	202
Towers See Poles		302
Transformer vault	Def	46
Transformers general		. 40
for utilization		-143 -8h
		000
		253
Iransverse, loads on lines	····· 230, 232, 280	a-5
table of	Table 23 App	). В
strength requirements		233
Trees, falling		83h
trimming		257
Trolley feeders (see also Conductor, contact)		277
Underground lines	260a, 290-	299
Urban districts	Def	. 48
Utilization equipment	De	f. 5
Ventilation of storage-battery rooms		131
Vertical conductors	243c, i, 246, 249g, Def.	34
Vertical separations	243, 244, 2	8oc
Voltage or volts	De	f. 6

## Index

	Rule No.
Walls and ceilings.	104
Warning signs.	205b, 248f
Weather map of the United States	App. A
Welders, electric furnaces and	350-352
Wind pressure. See Loading.	
Wire. See Conductors.	
Wire gages	Def. 50
Wiring	150-157
defective	111
infrequently used	112
temporary	56, 319, 322
Working space, for utilization	305
in stations	, 176g, 181b
lateral (see also Climbing space)	. 243, 246a
Yield point of conner	2028 G
eteol	223c, g
Steel	2345

.

