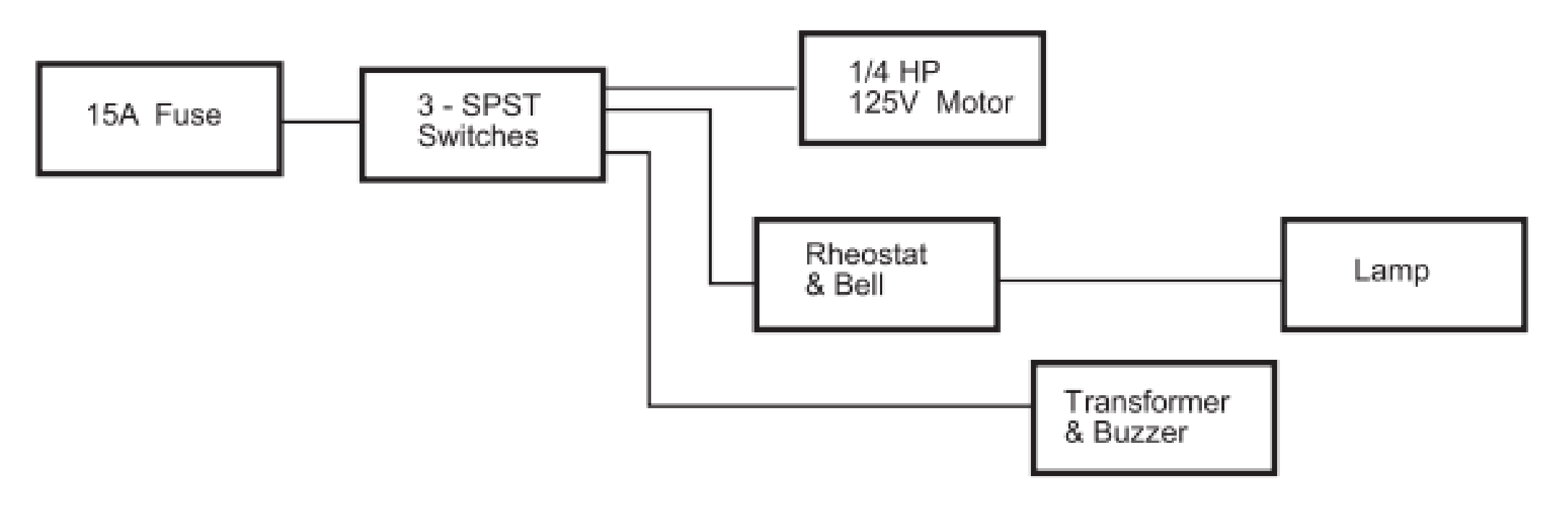
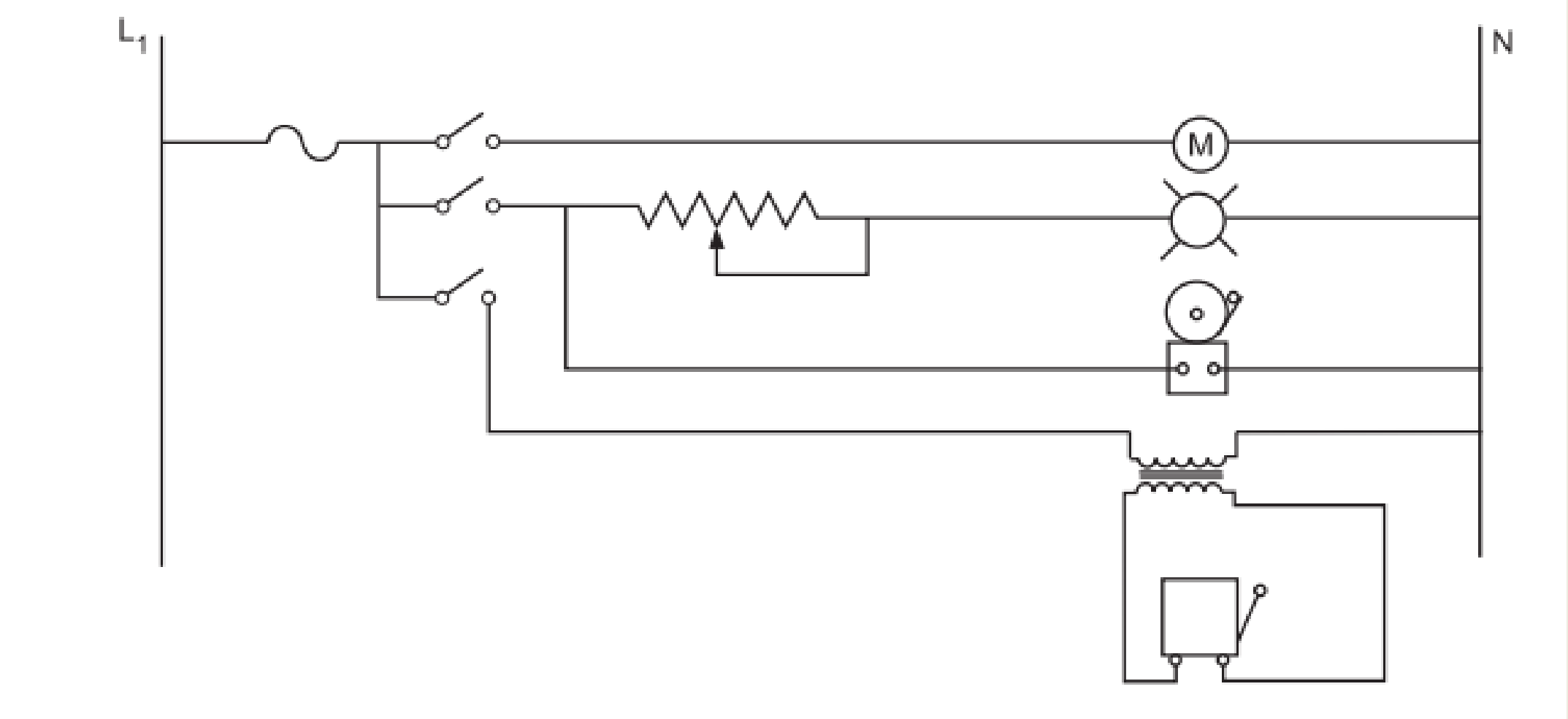
Wiring Diagrams 101

Block Diagrams



A diagram of a system in which the principal parts or functions are represented by blocks connected by lines that show the relationships of the blocks. Easier to read ☺

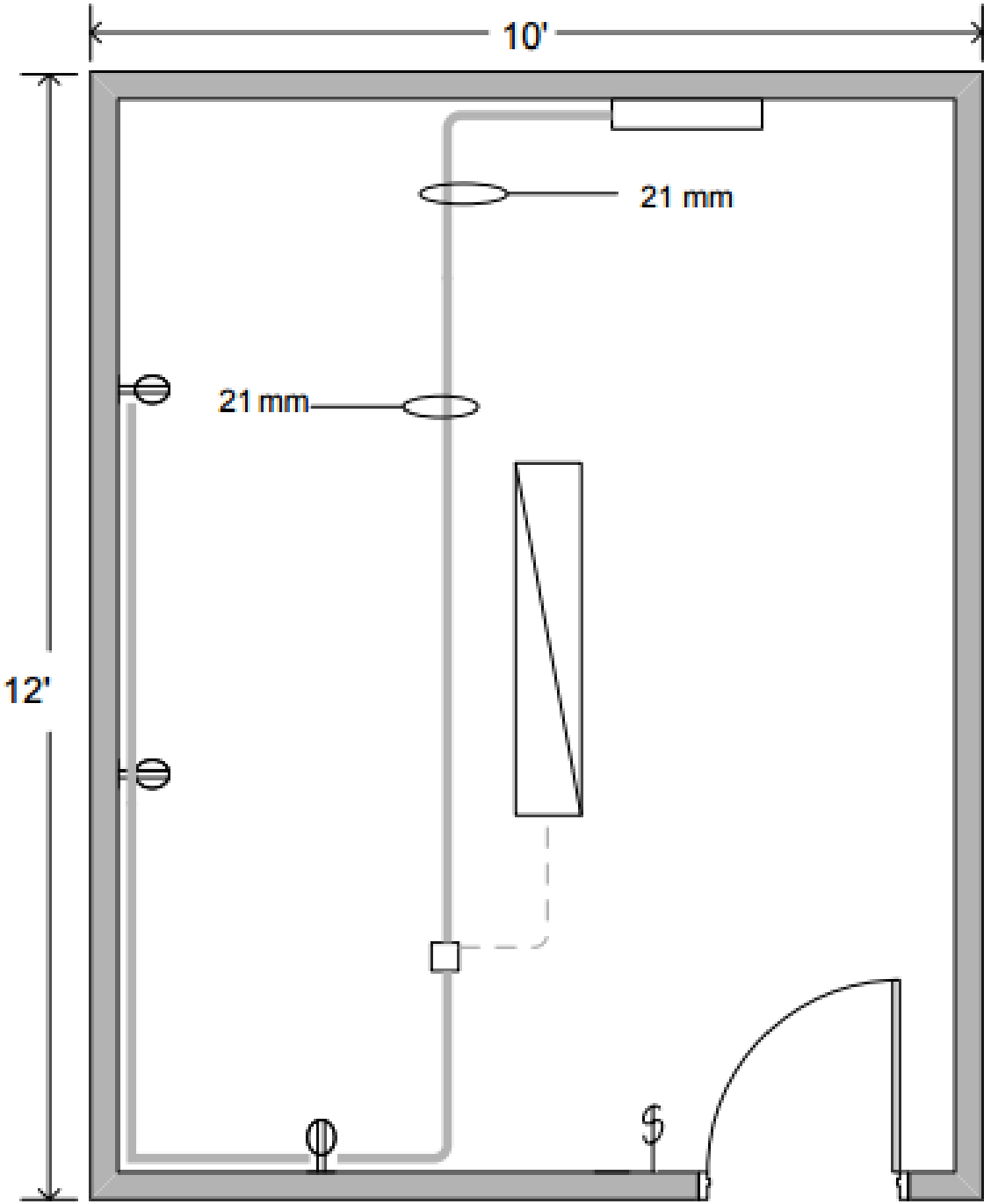
Schematic Diagram



A diagram that uses lines to represent the wires and symbols to represent components. It is used to show how the circuit functions.

Circuit Drawing

A simplified conventional graphical representation of an electrical circuit.



SYMBOL LEGEND	
	Duplex receptacle
	Single-pole switch
	1 × 4 fluorescent light fixture
	Electrical panel
	EMT run
	Armoured cable run (B/X)
	4x4 junction box

ELECTRICAL SYMBOLS

General Outlets

	Ceiling	Wall
lighting outlet	○	—○
blanked outlet	(B)	—(B)
drop cord	(D)	
fan outlet	(F)	—(F)
junction box	(J)	—(J)
lampholder	(L)	—(L)
lampholder with pull switch	(L)PS	—(L)PS
pull switch	(PS)	—(PS)
clock outlet	(C)	—(C)
fluorescent fixture	▭	
floodlight	(FL)	

Convenience Outlets

Switch Symbols

single-pole switch	S
double-pole switch	S_2
three-way switch	S_3
four-way switch	S_4
automatic door switch	S_D
switch and pilot lamp	S_P

Auxiliary Symbols

electric door opener	D
push button	•
buzzer	▢
bell	▢
annunciator	◇

Convenience Outlets

duplex receptacle

single triplex receptacle 1,3

split-switched-duplex receptacle

three-conductor split-duplex receptacle

three-conductor split-switched-duplex receptacle

weatherproof receptacle WP

range receptacle R

switch and receptacle S

special purpose outlet undesignated

Telephone

interconnecting telephone

outside telephone

annunciator

smoke detector S

thermostat T

Miscellaneous

lighting panel

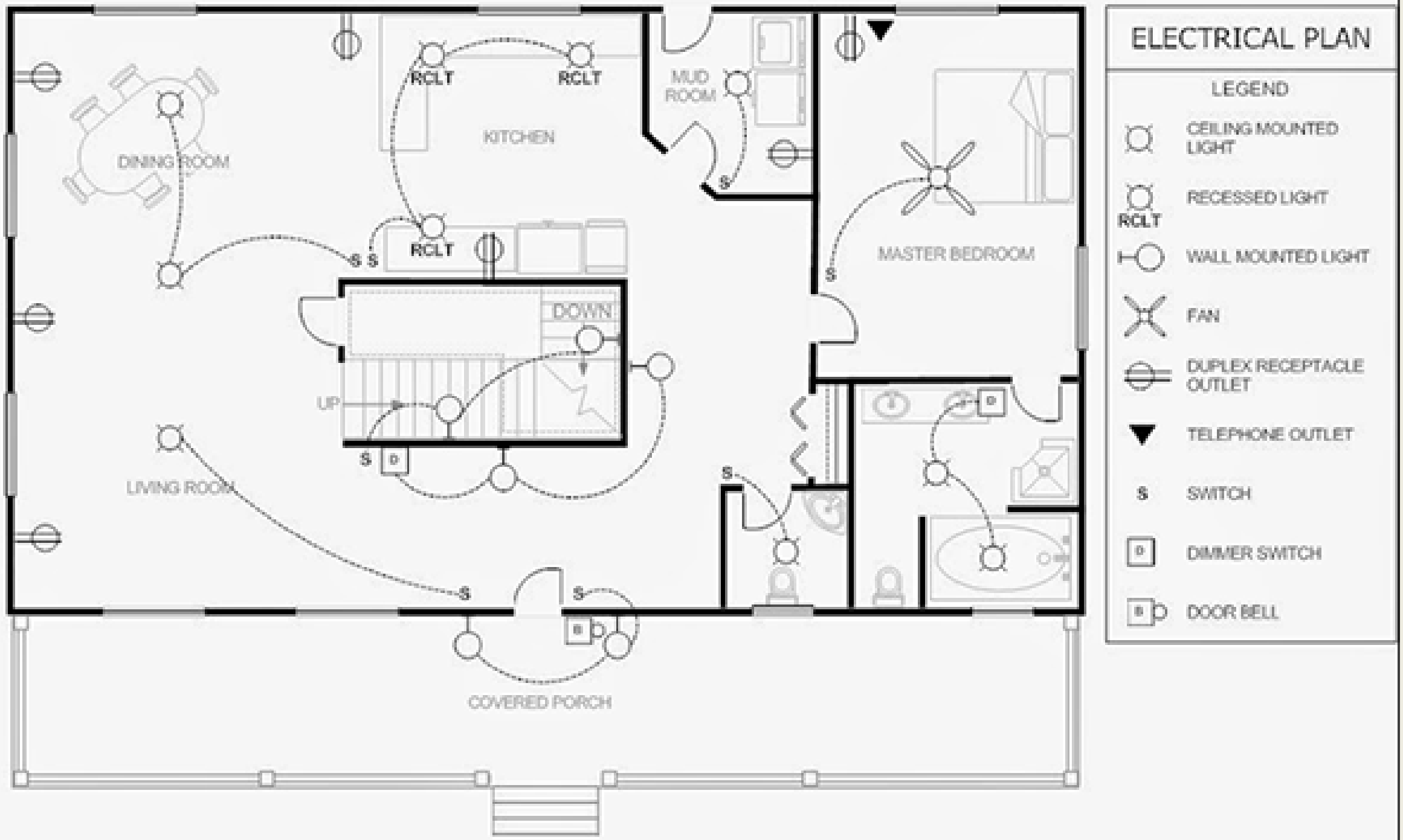
power panel

branch circuit in ceiling or wall

branch circuit in floor

exposed branch circuit

homerun to panelboard
(number of circuits indicated by number of arrows)


ELECTRICAL PLAN
LEGEND
CEILING MOUNTED LIGHT
RECESSED LIGHT
RCLT
WALL MOUNTED LIGHT
FAN
DUPLEX RECEPTACLE OUTLET
TELEPHONE OUTLET
S SWITCH
D DIMMER SWITCH
B DOOR BELL
DINING ROOM
KITCHEN
RCLT
RCLT
RCLT
MUD ROOM
MASTER BEDROOM
DOWN
UP
LIVING ROOM
COVERED PORCH
S
D
B

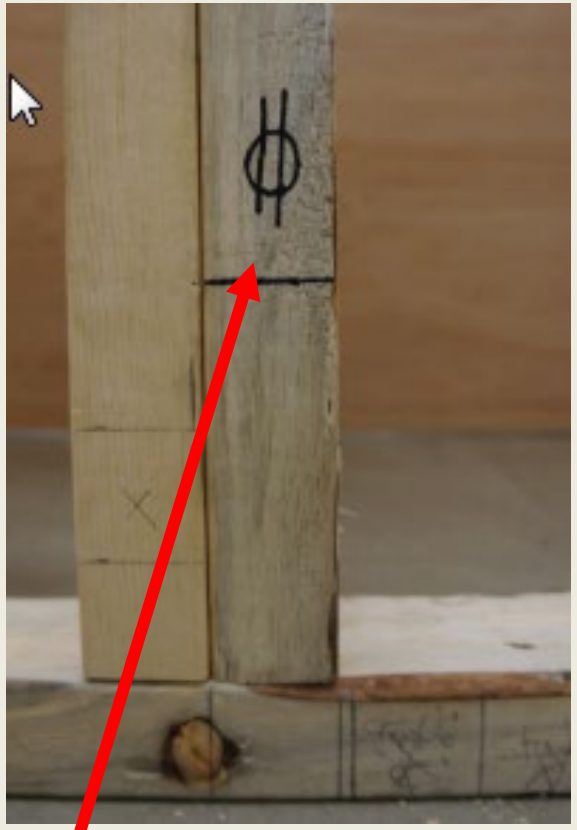
Marking where things go

Receptacles: usually at 12" or 30 cm from floor. Duplex is basic receptacle in houses

Switches: 46–52" or 115–130cm from floor

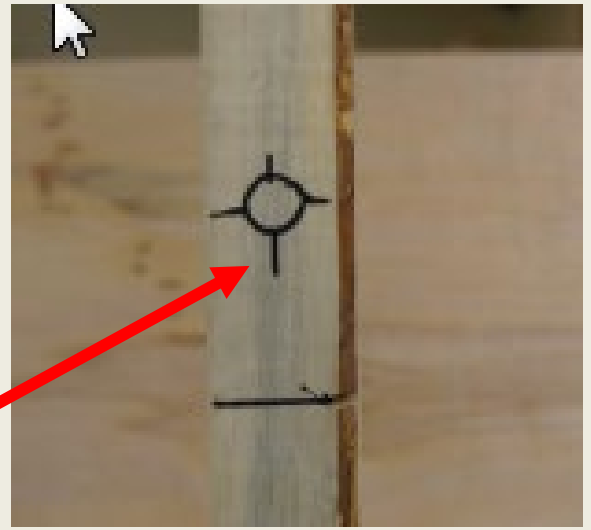
Kitchen Outlets: NOT on counter, above splash board height. Counters are 36”

Bathroom Outlets: 39” or 100cm away from shower or bathtub. Not above sink. Needs to be a GFI within 3m of sink, tub, shower



Duplex Receptacle

Single Switch



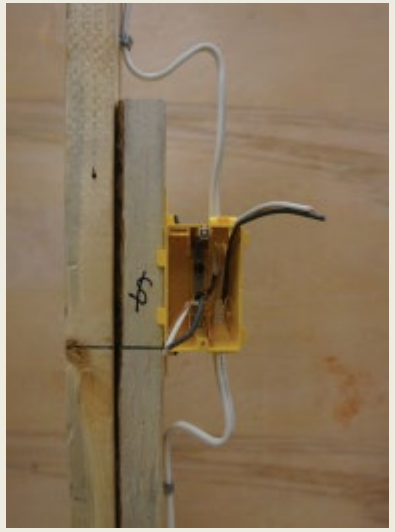
Light

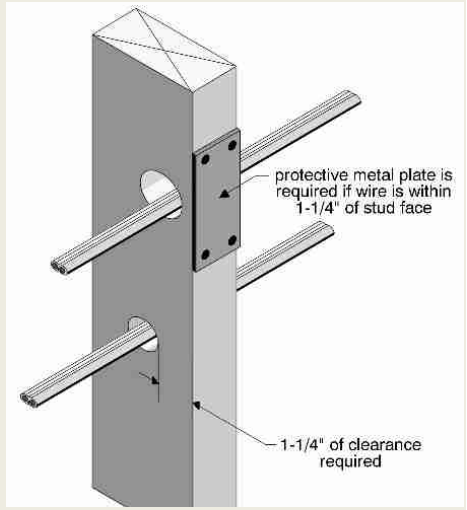
Installing Wires to Device boxes and Drill Holes

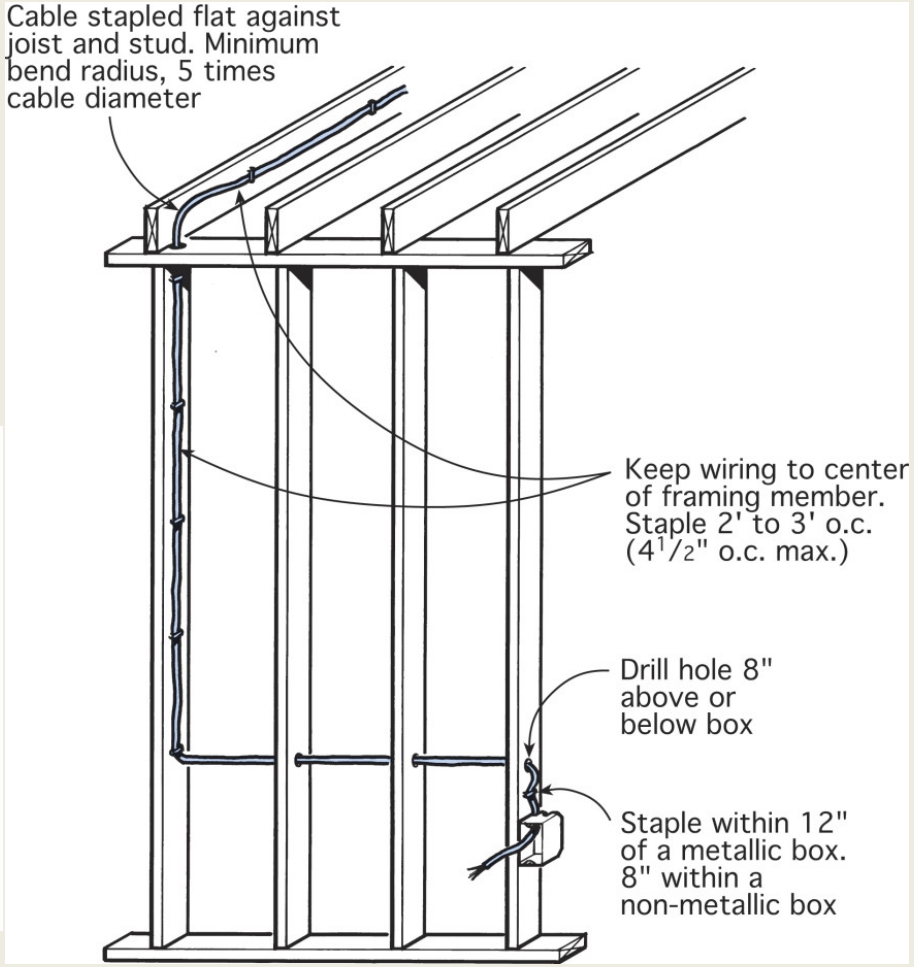
Courtesy Loop: Allow for a 3–5" (7.5–12.5 cm) courtesy loop for incoming power and staple the cable within 12” or 300mm of the box.

Drill Holes: All holes must be drilled in the centre of the stud to allow 1 ¼” (3 cm) clearance on either side of the hole to prevent drywall screws from penetrating the cable. 3 – 14/2 wires or 2 14/3 wires can go through a hole.

When stapling cable, the staple should not pinch the sheathing of the 14/2 cable. The code for strapping wire is not more than 12" (300 mm) from a box and every 59" (1.5 m) on a run. Cables run through studs are considered sufficiently supported.



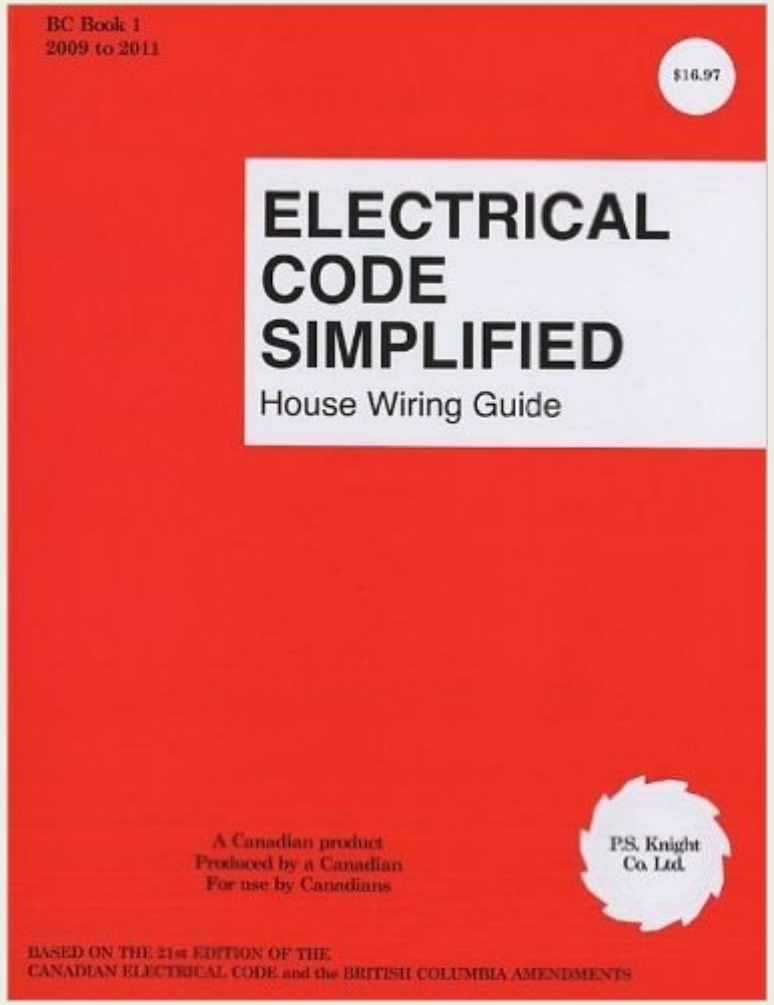


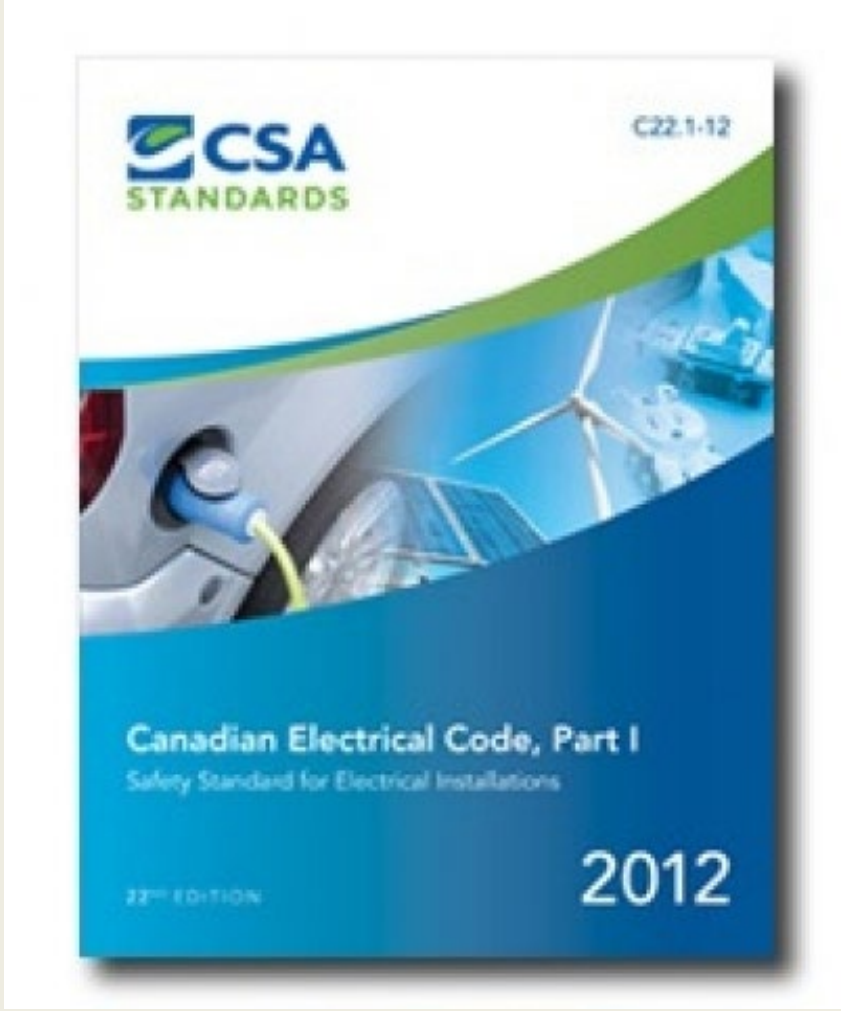


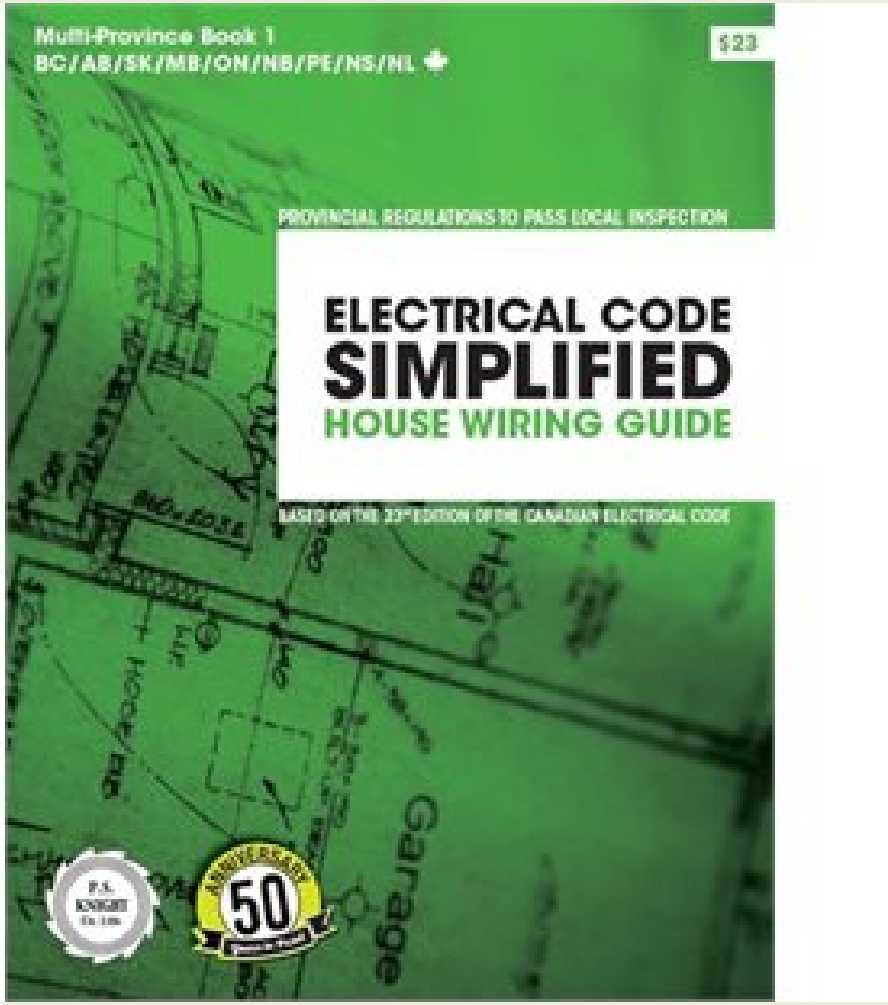
Conductors allowed in Outlet Boxes

Box Dimensions (inches)		Maximum Number of Conductors Permitted		
		#14	#12	#10
Device	3 x 2 x 1½	5	4	3
	3 x 2 x 2	6	5	4
	3 x 2 x 2¼	6	5	4
	3 x 2 x 2½	8	7	5
	3 x 2 x 3	10	8	6
Octagonal	4 x 1½	10	8	6
	4 x 2⅛	14	12	9

Electrical Code Books







Adding Electrical to a 24 x 32 Small Cabin Assignment

You need to add the following;

- Light Switches
- Lights
- Outlets
- Breaker panel

You do NOT need to add circuits branches