



Telephone, Electrical, and lighting
plan





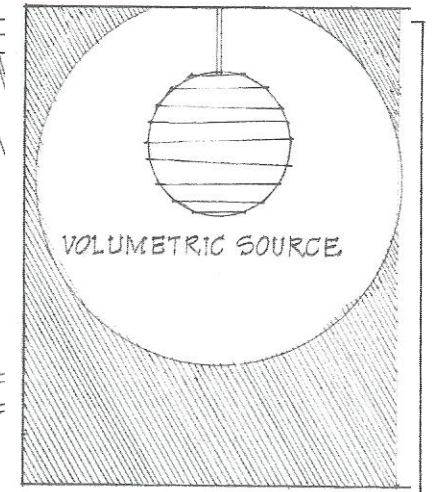
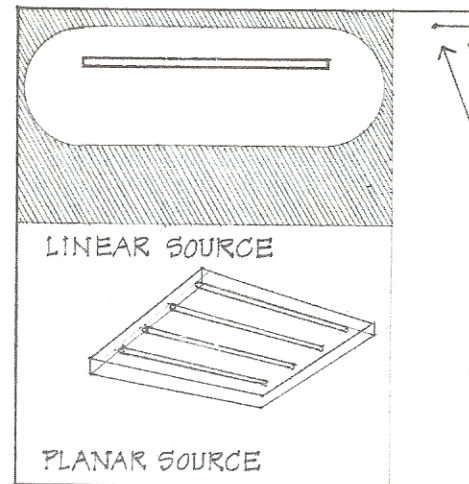
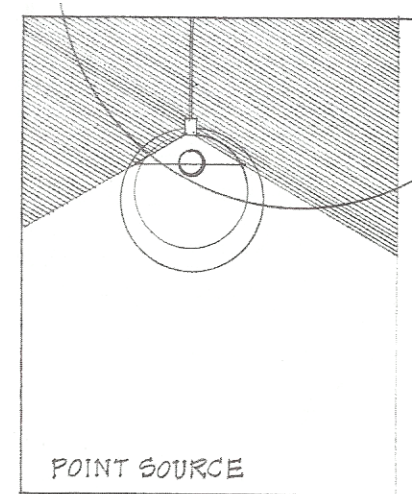
Lighting

Lighting fixtures

- ▶ Graphic presentation symbols
 - ▶ Do not
 - ▶ shape or size of the actual objects
 - ▶ A ceiling outlet indicates the 'location' of an outlet
 - ▶ not the shape or size of the fixture
- ▶ Luminare refers to

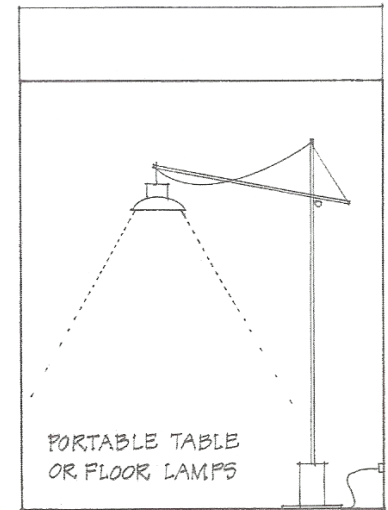
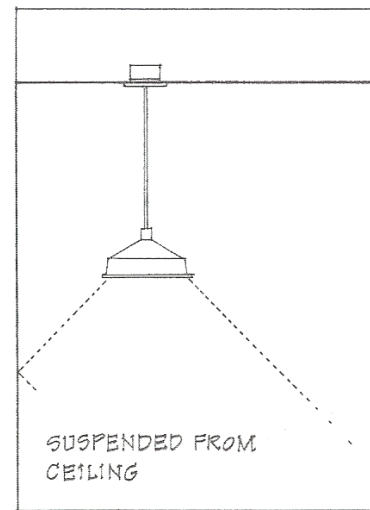
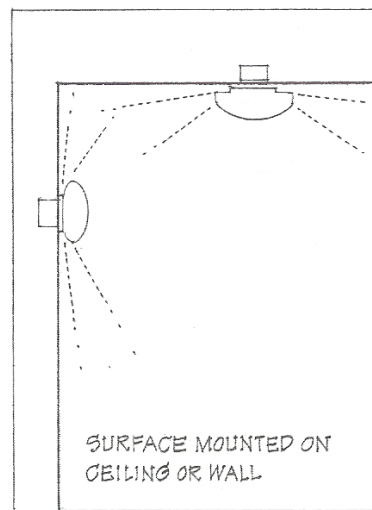
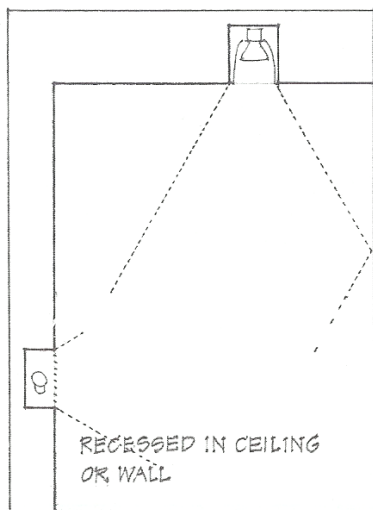
- ▶ Light source

- ▶ Point
- ▶ Linear
- ▶ Planar
- ▶ Volumetric



Light illumination

- ▶ Depending on the fixture
 - ▶ placement and orientation in a space
- ▶ Can provide illumination



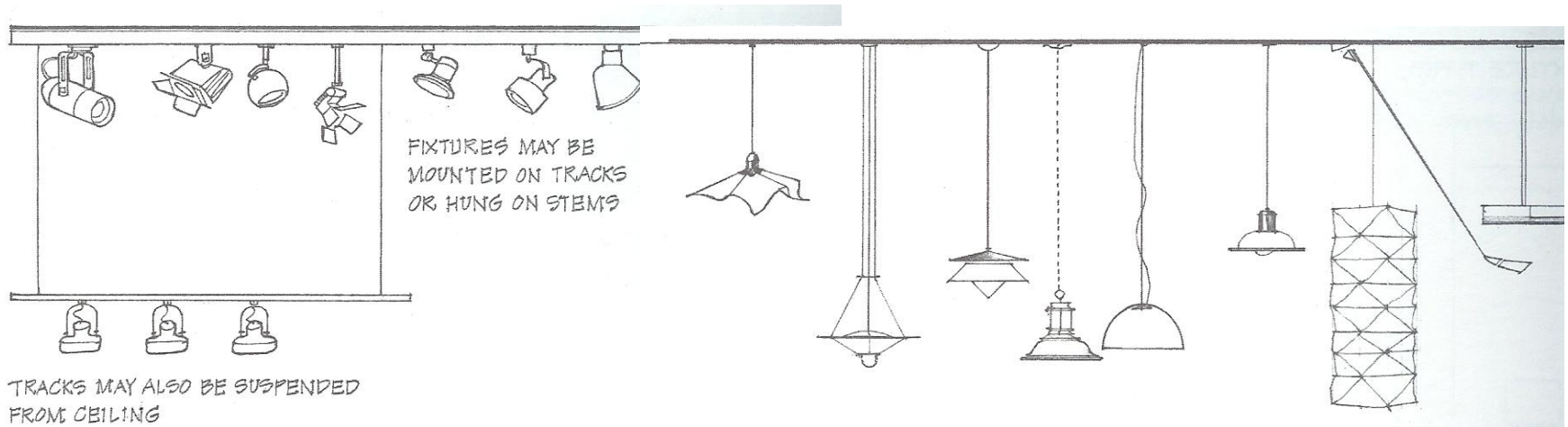
DIRECT LIGHTING FIXTURE TYPES



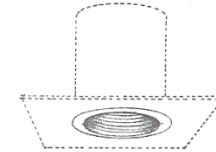
Direct illumination

- ▶ Examples of track lighting fixtures

- ▶ Examples of suspended lighting fixtures



Direct illumination - Recessed down lights



• BAFFLED DOWNLIGHT



• ADJUSTABLE EYEBALL



• PINHOLE DOWNLIGHT

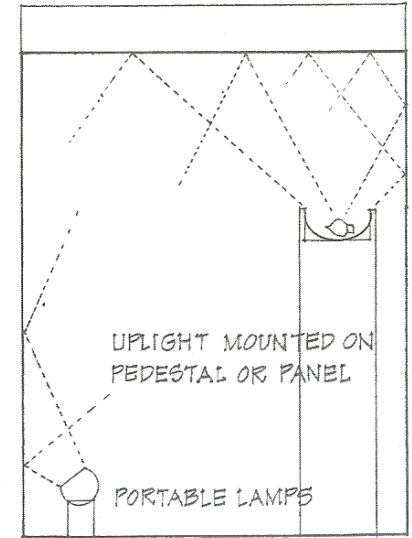
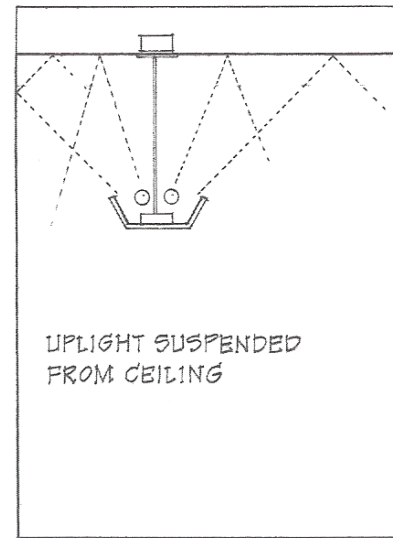
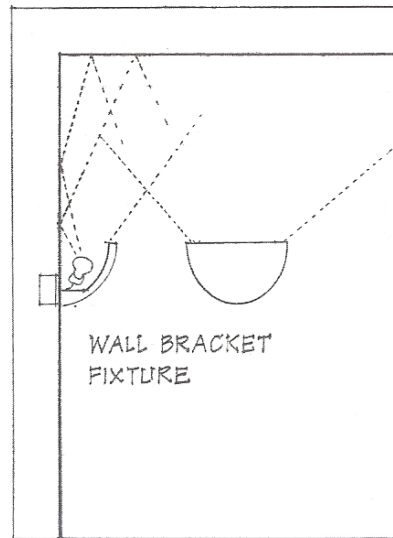
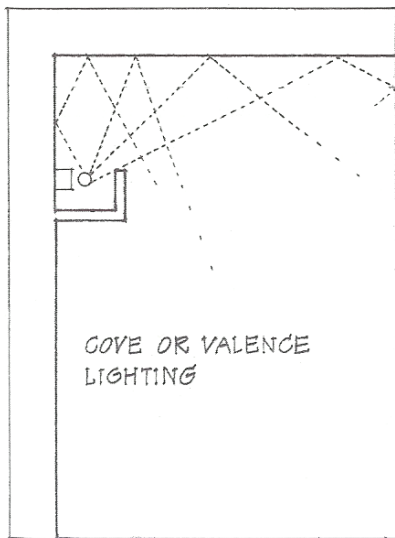


• BAFFLED WALL WASHER

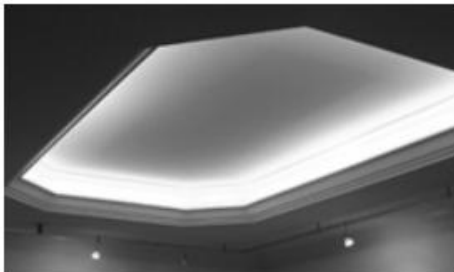
TYPES OF RECESSED DOWNLIGHTS



▶ Indirect illumination

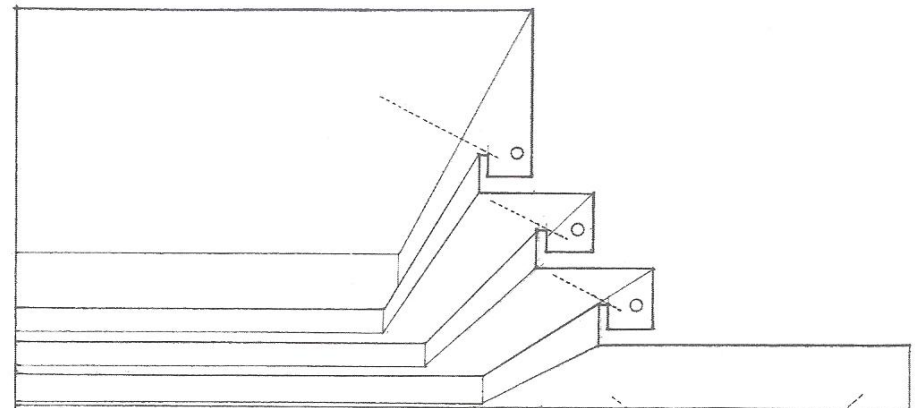
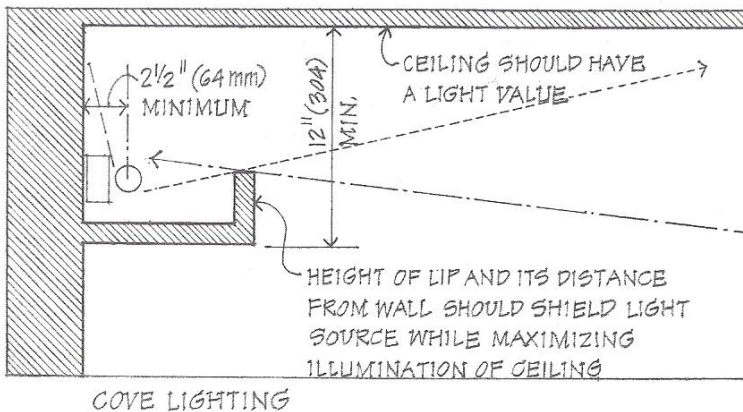


INDIRECT LIGHTING FIXTURE TYPES



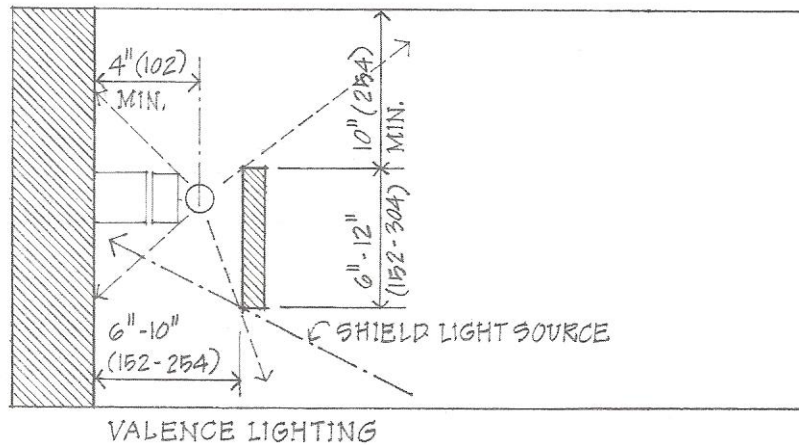
Indirect illumination – Cove lighting

- ▶ illuminate the ceiling and the upper area of walls
- ▶ Light sources are shielded from.....
- ▶ Ceiling plane is used as a
- ▶ Usually fluorescent tubes are used



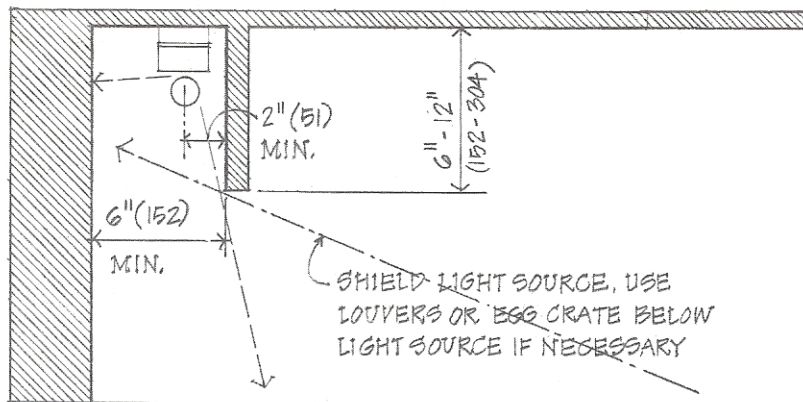
Indirect and direct illumination – Valence lighting

- ▶ Provides both up lighting and down lighting
 - ▶ To illuminate.....

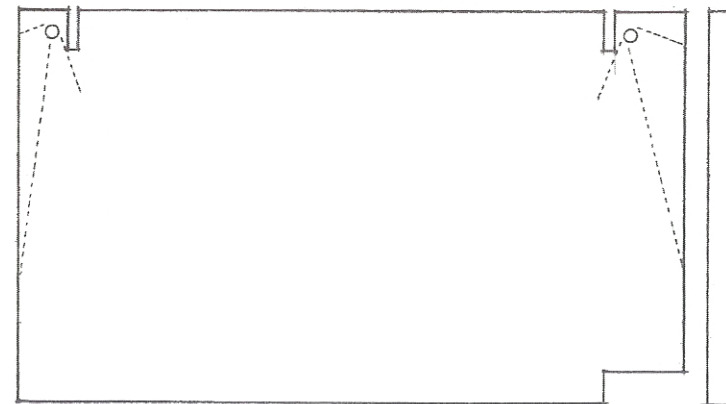


Indirect illumination – Cornice lighting

- ▶ Provide down lighting to illuminate
- ▶ It can be used to balance
- ▶ day lighting
- ▶ highlight and
- ▶ or illuminate



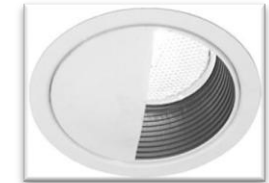
CORNICE LIGHTING



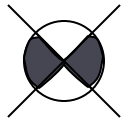
Reflected ceiling symbols



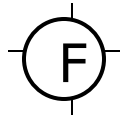
Recessed wall washer



Ventilation fan for bathroom



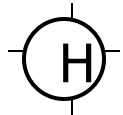
Ventilation fan with light for bathroom



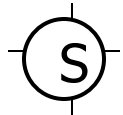
Ceiling fan with lights



Ceiling fan without lights



Heater with light



Ceiling mounted light with single switch pole



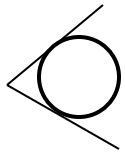


Recessed down light

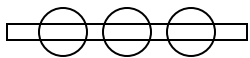
A flush outlet is one in which the fixture will be installed flush with the ceiling (for recessed light)



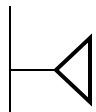
Ceiling mounted light



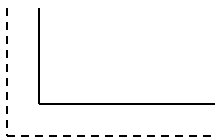
Adjustable wall washer (arrow in direction of focus)



Ceiling mounted track light



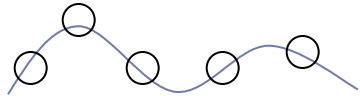
Wall mounted sconces



Ceiling Cove lighting

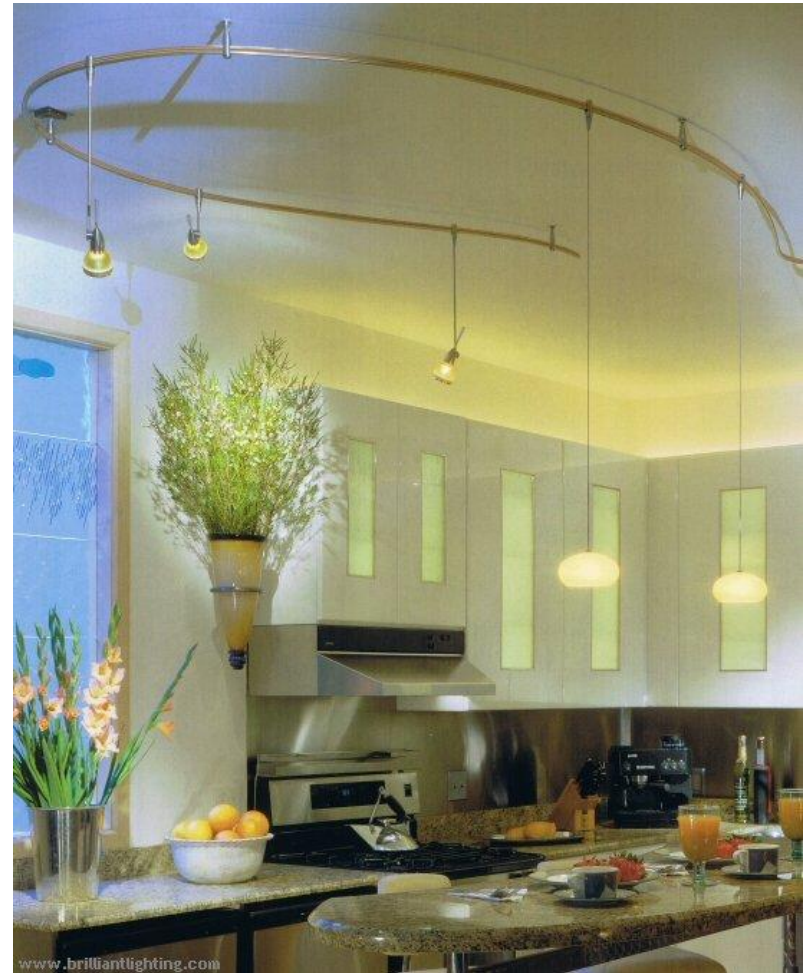


- ▶ Ceiling mounted track light
– monorail lighting



- ▶ Suspended lighting - pendant light

Ⓟ



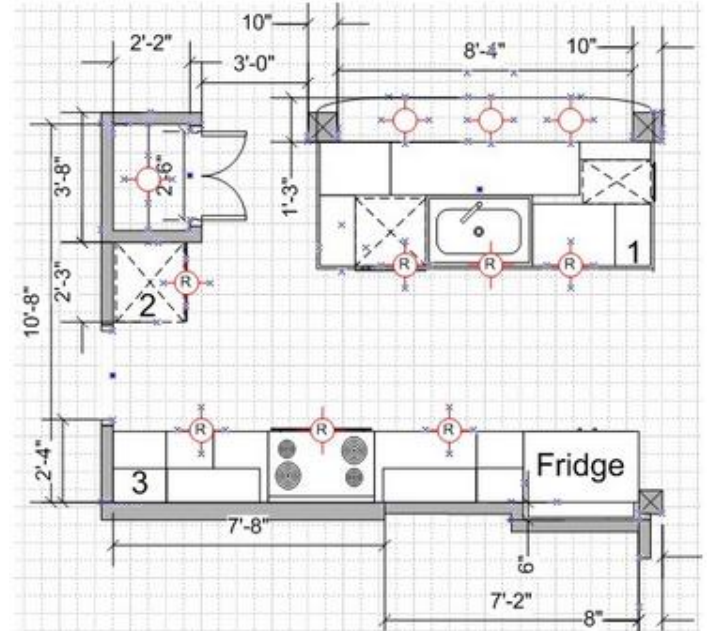
www.brilliantlighting.com

Under cabinets task lights

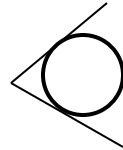
- ▶ Surface mounted under cabinet/above cabinet



I



Down lights highlighting custom shelving and fireplace



Fluorescent pendant lighting



Design inspired from Dracaena plants - compact fluorescent bulb by [David Knott](#)



Cove lighting highlighting hallway and perimeter wall



Placement of light source

Cover photograph and photograph to left:
Blue Cross Blue Shield, Corporate Headquarters,
Chicago, Illinois
Cosentini Lighting Design, New York, N.Y.
VOA, Architects, Chicago, Illinois
Nick Merrick, Hedrich Blessing, Photography

Concealed Cove Systems



▶ Cove lighting



▶ Cornice lighting



Residential Code requirements



Duplex outlet

must be spaced no more than 12' apart

6' from any opening

3' from any corner wall

must be supplied somewhere on each wall surface where furniture could be located



Smoke detector

For each enclosed room such as bedroom

Each open floor or living space (along corridor and kitchen area)



CM

Carbon monoxide detector

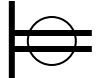
Each floor of living space

wall or ceiling mounted

CM



Code requirements

-  **Ground Fault Interrupter**
- ▶ Damp area
 - ▶ This device cuts off power in case of grounding to limit fire or shock hazards



Switch symbol

▶ Switch \$

- ▶ Maximum standard height is 4'-0" A.F.F. and minimum of 2 1/2" from the door frame
- ▶ wheelchair accessibility height 40" A.F.F.

▶ A center line

- ▶ Is used to show which switch connects with which outlet (chain = curvilinear line)

\$ Two-way switch

One switch controls one or a series of outlets

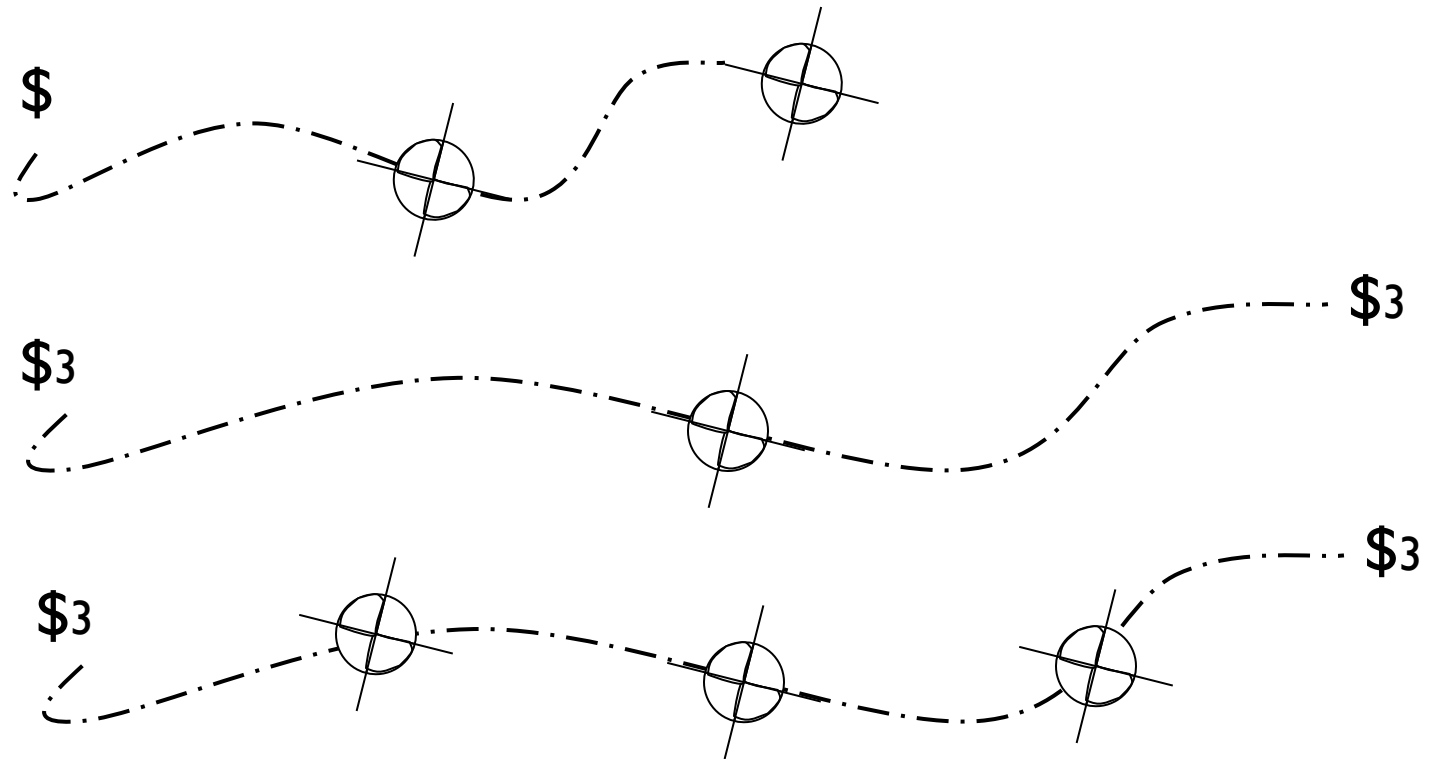
\$₃ Three-way switch

Two switches control one or a series of outlets



In plan

► Switches



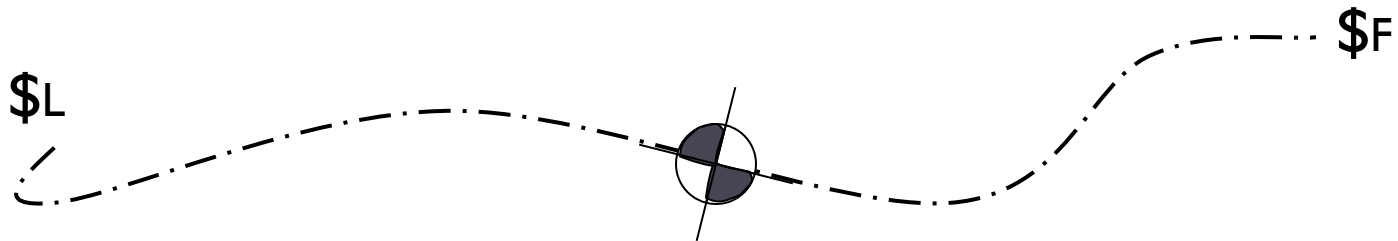
Switches

$\$L$

Switches for light and fan can be separated to individual switches or combined as one

$\$F$

$\$LF$



$\$4$ Four-way switch

$\$K$ “K” is used for key operated

A letter used instead of a number represents a special type of switch

$\$DM$ “DM” is for dimmer



Electrical symbols



Wall duplex outlet

Symbol indicates two outlets, 12" A.F.F.



Wall quadruplet outlet

Symbol indicates four outlets, 12" A.F.F.



Wall dedicated circuit outlet

Most commonly used for computer and fax machine in case of short circuit (to prevent interference)



Electrical symbols



+ 48"
A.F.F

Wall duplex outlet at non-standard height

Number indicates the height of the outlet A.F.F to the center of the outlet

Can typically be found in the bathroom area



+ 44"
A.F.F

Wall duplex outlet at 44" A.F.F.

Can typically be found in the kitchen above the countertop



GFI

Wall duplex ground fault interrupter outlet

Standard Duplex GFI outlet

Can typically be found in damp area



+ 48" A.F.F
GFI

Wall duplex outlet with ground fault interrupter outlet at non-standard height



Electrical symbols



“WP” is for weather proof

Outdoor outlet usually has a cap covered the outlet



Outlets is controlled by a switch



One outlets is controlled by a switch and the other is a standard outlet



Wall duplex with 220 volt outlet

Higher voltage appliances such as stove, refrigerator, separate oven or countertop cooking unit, water heater, washer, dryer



Telephone, data, and cable symbols



Wall telephone jack



Wall computer data jack for network connection (data outlet)



Wall telephone jack at 60" A.F.F.

+ 60"
A.F.F.

Number indicates the height of the outlet A.F.F to the center of the outlet



Wall telephone and computer data jacks in one junction box



Wall cable outlet



Electrical symbols

Other symbols



A floor outlet



Gas outlet

Gas

Would be used to indicate a gas jet in a fireplace, water heater, dryer, stove

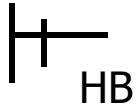


Control key for fuel gas

Would be used to indicate the control for gas with key, probably somewhere near the fireplace



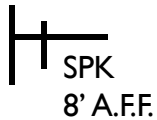
Electrical symbols



Hose bib

A connection for a water hose (outside the house on the exterior wall for watering the yard)

Minimum two water hoses needed in residential design, each on the side of the house



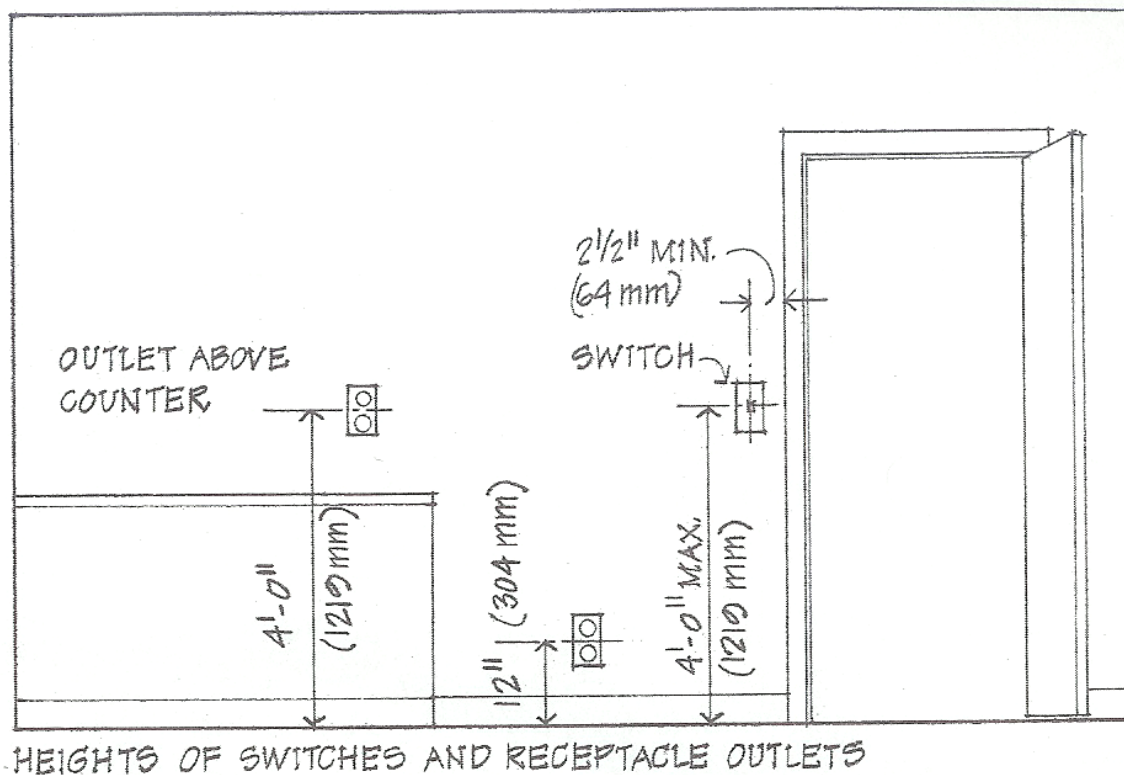
Speaker line

Give the height of the location of the speaker outlet A.F.F























Outlets location on vertical plane

- ▶ Useful to know when drawing elevation



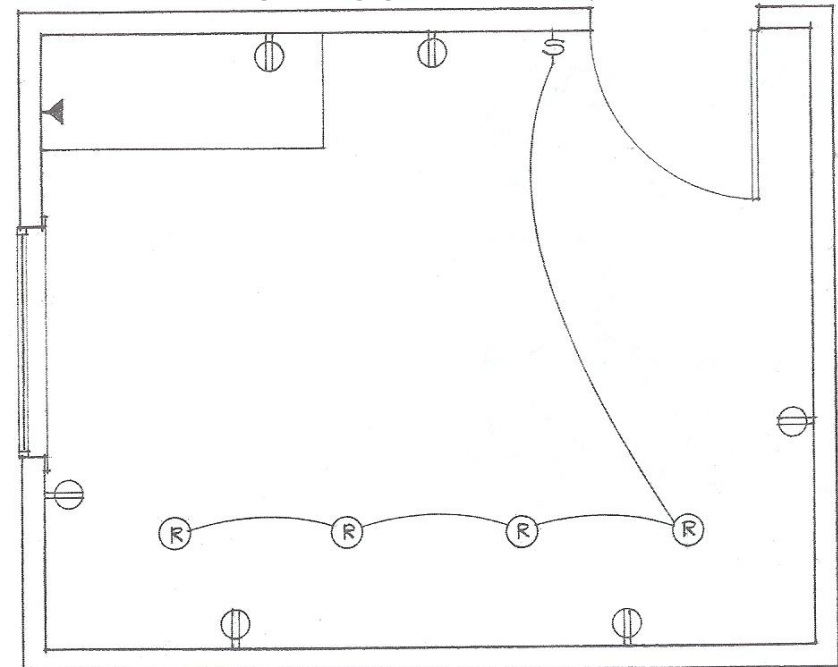
Sample of T&E and lighting plan

Telephone and Electrical Legend

	Lighting Panel		Fluorescent Fixture
	Power Panel		Ceiling Incandescent
	Single Pole Switch		Wall Incandescent
	Three-Way Switch		Recessed Fixture
	Duplex Receptacle		Exit Light Outlet
	Floor Duplex Outlet		Fan Outlet
	Special Purpose Outlet		Electrical Outlet
	Telephone Outlet		Motor
	Floor Telephone Outlet		Junction Box
	Television Outlet		Thermostat

TYPICAL ELECTRICAL SYMBOLS

T&E and lighting plan



TYPICAL ELECTRICAL & LIGHTING PLAN



Ceiling design

Deconstruction ceiling and wall



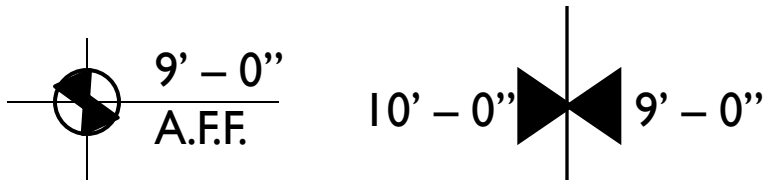
Clouds and canopies ceiling

► By Amstrong



Ceiling height symbol

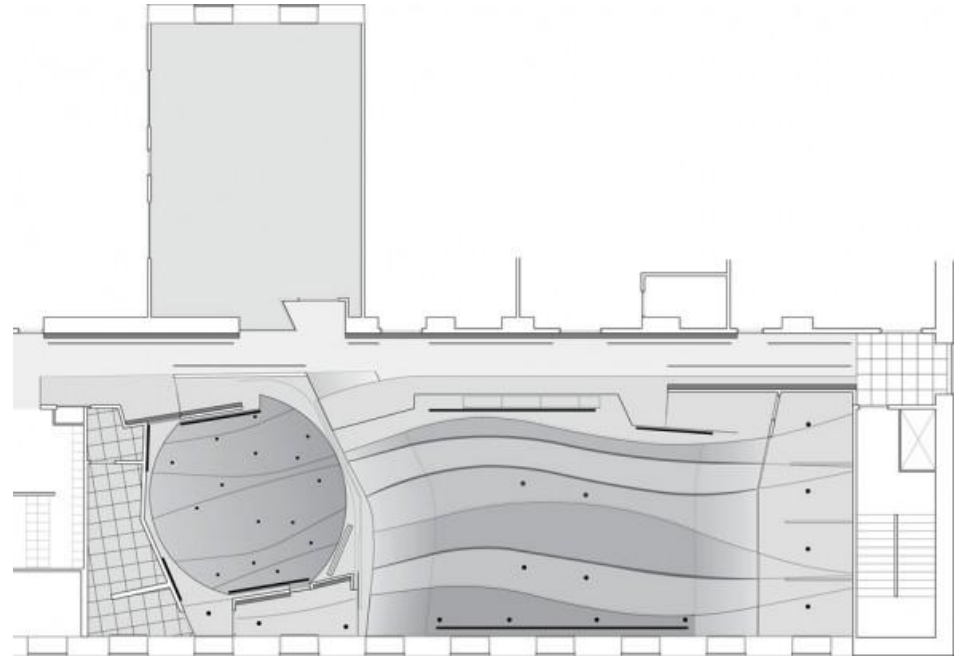
- ▶ Ceiling height or height changes
 - ▶ Symbol in plan



- ▶ Open plenum
 - ▶ Space between the structural ceiling slab and the finished ceiling
 - ▶ Space may contain.....



Curve ceiling design



Reflected ceiling plan



T & E and Reflected Ceiling plan

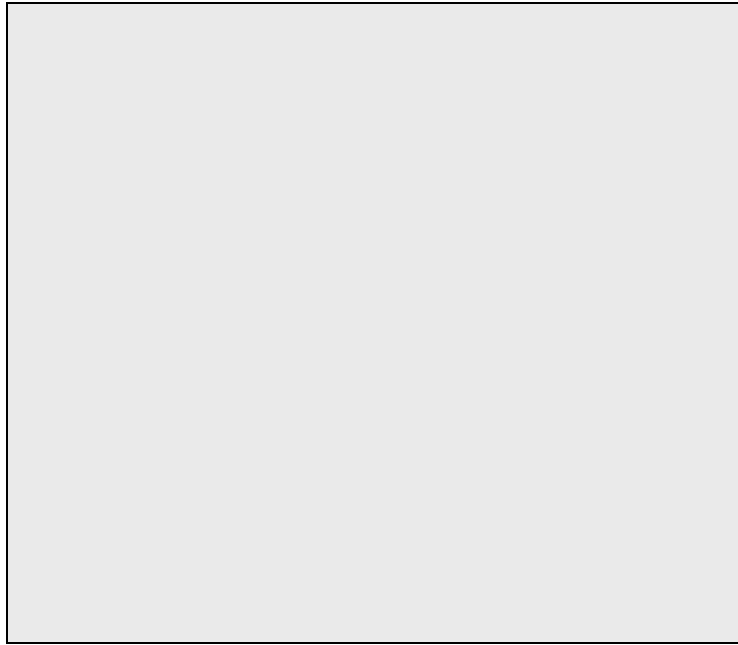
- ▶ Consists of
 - ✦ Floor plan
 - ✦ Room schedule
 - ✦ Room numbers
 - ✦ Existing construction
 - ✦ New interior partitions
 - ✦ Exterior doors and windows
- ▶ Lighting symbols
- ▶ T & E symbols
- ▶ Ceiling height symbol
- ▶ Ceiling design/pattern plan
- ▶ Ceiling legend
- ▶ T & E Legend
- ▶ Dimensioning location of light fixtures



Room Schedule

NO.	ROOM DESCRIPTION
300	FOYER/ENTRY
301	KITCHEN
302	DINING AREA
303	LIVING AREA
304	DEN
305	LIBRARY





T & E and Reflected Ceiling plan

SCALE: 1/4" = 1'-0"



T & E Legend

Ceiling Legend

Room Schedule

A2

Placement of light source

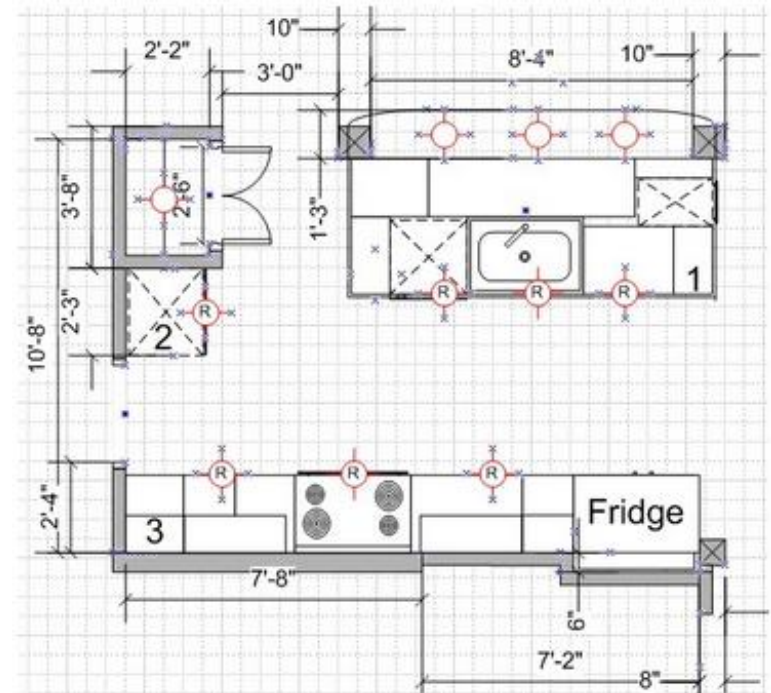
▶ Kitchen area

- ▶ Light sources should locate between 8" to 16" from the wall

▶ Work area

- ▶ A light source should not be reflected directly into the eye

▶ Kitchen area



Studio assignment:

▶ Computer dedicated circuit

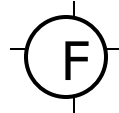


▶ Gas outlet for fireplace

▶ Controlled by fuel gas



▶ Ceiling fan with lights



▶ Switches – Light and ceiling fan

\$L

\$CF

▶ Duplex outlets



▶ Cable outlets



▶ Wall telephone jack



▶ Wall data jack 

▶ Outlets for washer and dryer



▶ Closet – single light pole 

▶ Bathroom – ventilation fan with light 

▶ Either with separate switches or combine both

\$L \$VF



Studio assignment: (cont'd)

- ▶ Smoke detector 

- ▶ Bathroom –at least 2-duplex outlets with GFI above sink area



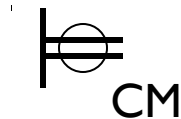
+ 48" A.F.F
GFI

- ▶ Fireplace – at least 3-recessed lights with dimmer above the fireplace

\$_{DM}

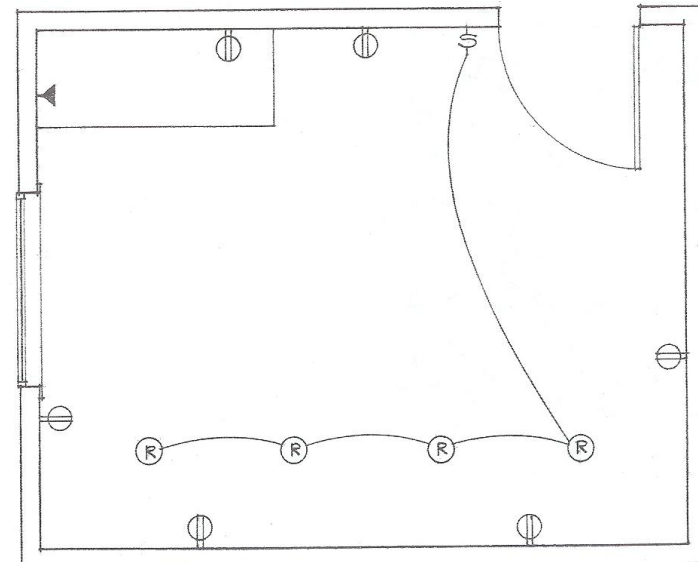
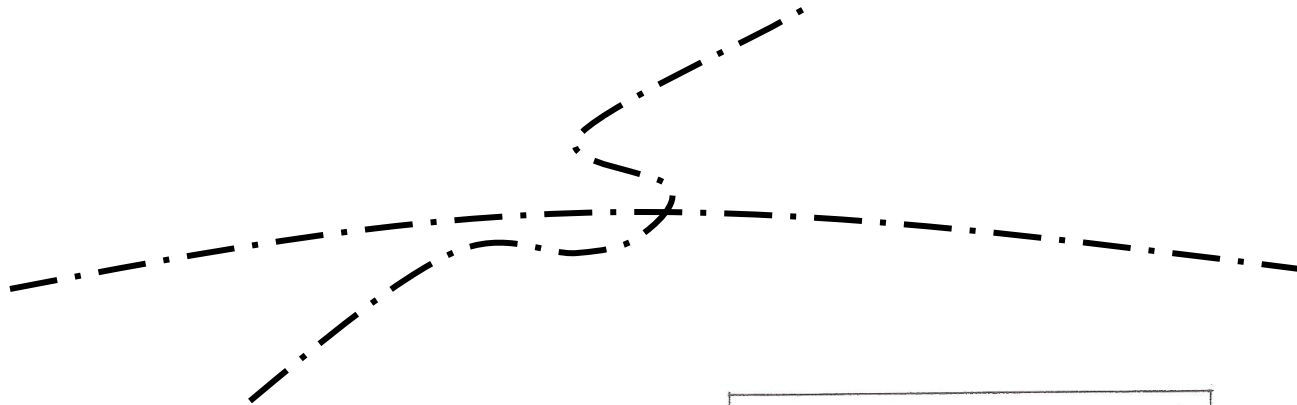


- ▶ Carbon Monoxide detector



Show chain line connecting switch

▶ Chain lines



TYPICAL ELECTRICAL & LIGHTING PLAN



GUEST BEDROOM



MASTER BEDROOM

MASTER BATH

STUDY

12'-3"

Small vertical text or signature on the right edge of the drawing.