

ELECTRICAL ENGINEER



LECTURERS

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OUR TEAM

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JOBSCOPE

Find jobs in many industries

Developers seek electrical engineers

in → designing
→ installation of necessities

Submits site daily reports

COMMUNICATE WITH

Civil Engineer

Architect

RESPONSIBILITY

Plan Layout

Inspect Completed Installation

Perform Calculation

ELECTRICAL ENGINEERS

History

In 1600, The English scientist, William Gilbert extended the study of Cardano on electricity and magnetism

FAMOUS PEOPLE

MICHAEL FARADAY (1791-1867)

FRANK JULIAN SPRAGUE (1857-1934)

WILLIAM DAVID COOLIDGE (1873-1975)

DEFINITION

A field of engineering that generally deals with the study of electricity, electronics and electromagnetism.

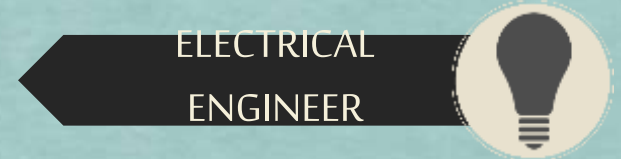
DEFINITION



ELECTRICAL ENGINEERING

the business or study of designing and building electrical systems, especially those which power and control machines, or are involved in communication.

a trained expert in electrical systems, especially systems that power and control machines or are involved in communication.



ELECTRICAL ENGINEER



ENGINEER

An engineer is a professional practitioner of engineering, concerned with applying scientific knowledge, mathematics, and ingenuity to develop solutions for technical, societal and commercial problems.

set of physical phenomena associated with the presence and flow of electric charge.



ELECTRIC

RESPONSIBILITIES

IDENTIFY

customer requirements

DESIGNING

systems and products

READING

design specifications and technical drawings

RESEARCHING

suitable solutions and estimating costs and timescales

MAKING

models and prototypes of products using three-dimensional design software

HISTORY



← (William) →
Gilbert

Possibly the **world's very first electrical engineer.**

He invented the versorium – essentially a metal needle mounted on a base, and able to spin freely.

The versorium could distinguish between charged and non-charged objects; it would spin toward charged objects, letting the user know that they were carrying some amount of static electricity.

FAMOUS PEOPLE



← (Michael Faraday (1791-
1867)) →

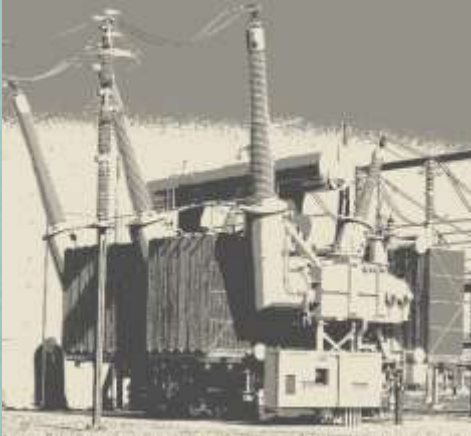
His electrical transformer and electromagnetic generator marked the beginning of the age of electric power



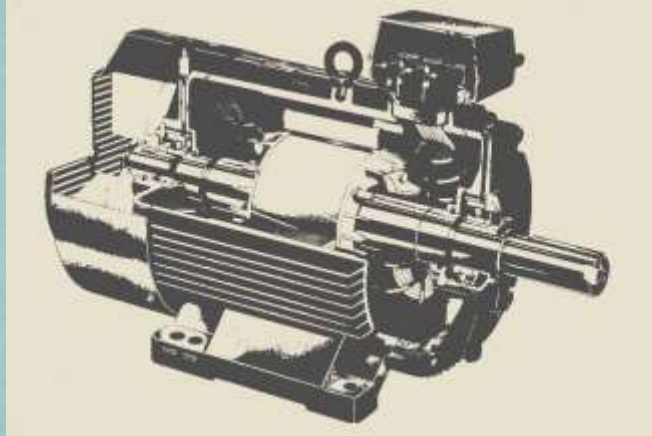
← (Frank Julian Sprague
(1857-1934)) →

Contributed to the development of electric motor ,
electric railways and electric elevators

EXAMPLES



ELECTRICAL
TRANSFORMER



ELECTROMAGNETIC GENERATOR



ELECTRIC RAILWAY

COMMUNICATION

BETWEEN
THE

ARCHITECT



ELECTRICAL
ENGINEER

An architect have to draw the layout and hand it over to the electrical engineers to allow them to draw their electric circuit plans.

BETWEEN
THE

CIVIL
ENGINEER



ELECTRICAL
ENGINEER

Electrical Engineer has to provide power circuit after civil engineers complete their construction.

JOB SCOPE



Electrical engineers can find jobs in many industries.



In the built environment sector, developers seek electrical engineers for roles in building services engineering, designing and overseeing the installation of necessities such as power, lighting and wiring.



They are generally responsible for implementations and monitoring of all electrical related works at sites.



Submits daily site reports, inspection requests, estimates and all applicable monitoring reports on regular basis or as required.

ELECTRICAL ENGINEER



ELECTRICAL DRAWINGS



FUNCTIONS OF DRAWINGS



Furnish sufficient information to permit installation of manufactured equipment that requires electrical service without conflict with work of other disciplines.



Furnish sufficient information to manufacture equipment that is of special design, made exclusively for the project. Components and systems shall be UL listed.



Describe items so that they may be procured.



Furnish sufficient information to permit planning, construction, evaluation, recording, repair, and maintenance of facilities.



Furnish the above in sufficient completeness for accomplishment without the need of assistance from the Consultant.

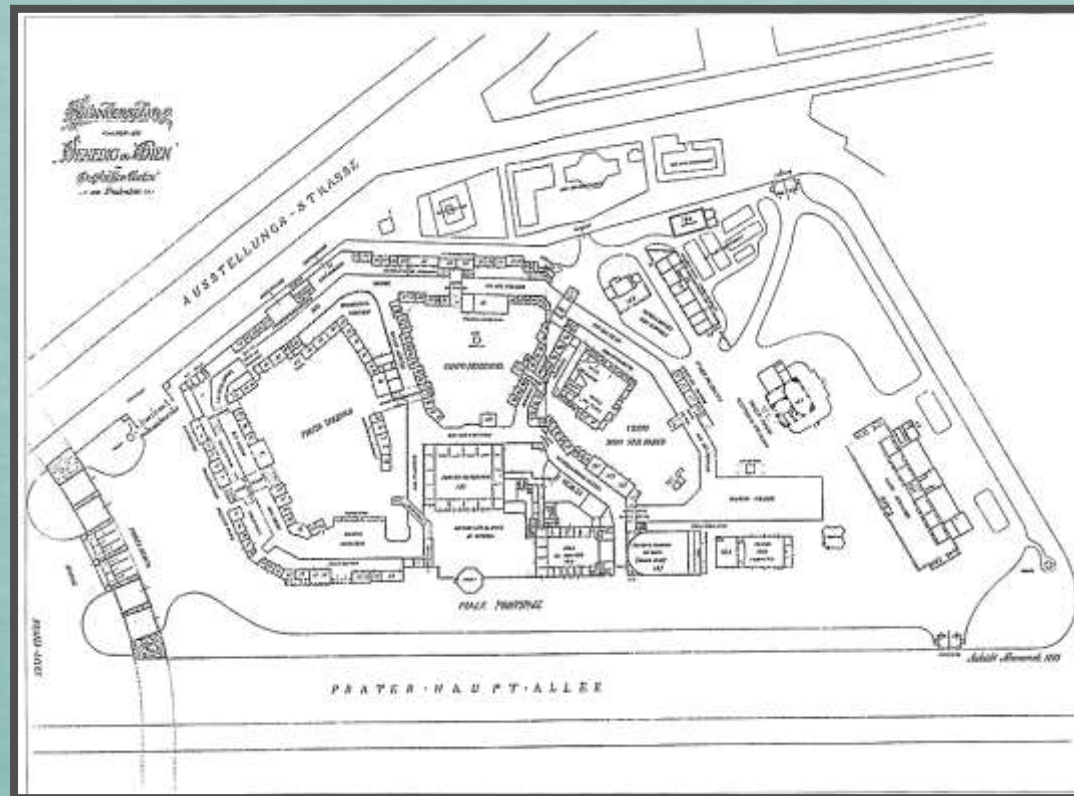
PROCESS OF DRAWINGS



PROCESS OF DRAWINGS

PLOT PLAN

- * 'top-down' orientation.
- * showing buildings, utility runs, and equipment layout, the position of roads,
- * known more commonly as site plans

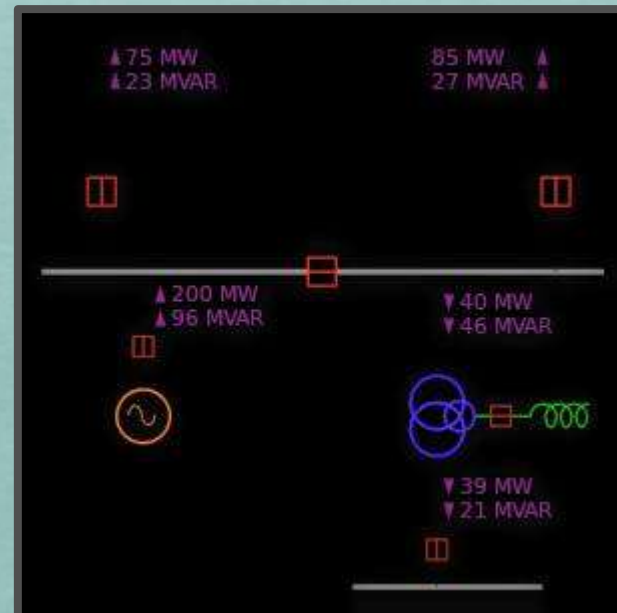
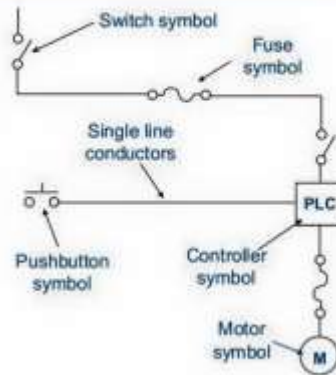


TYPE OF DRAWINGS

PLOT OF ONE-LINE DIAGRAM

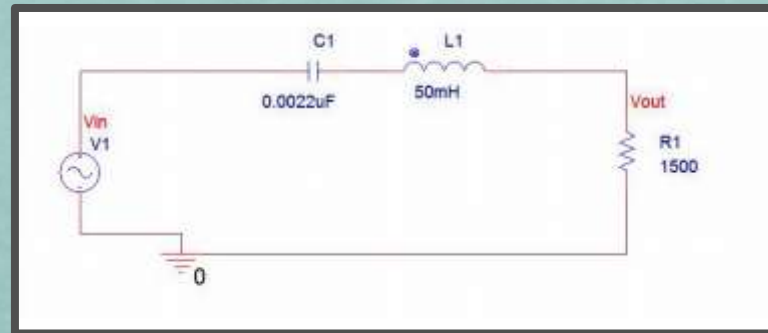
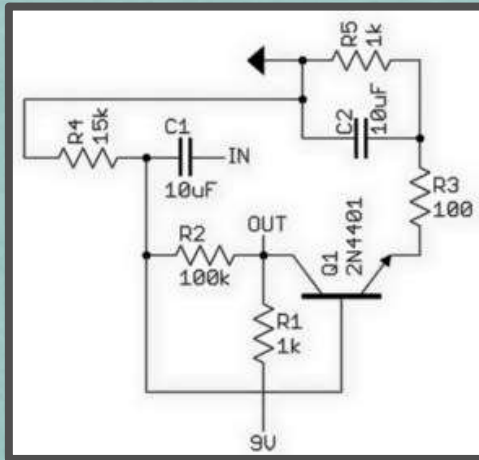
One-line diagram example

- A one-line diagram uses single lines and graphic symbols to indicate the path and components of an electrical circuit.



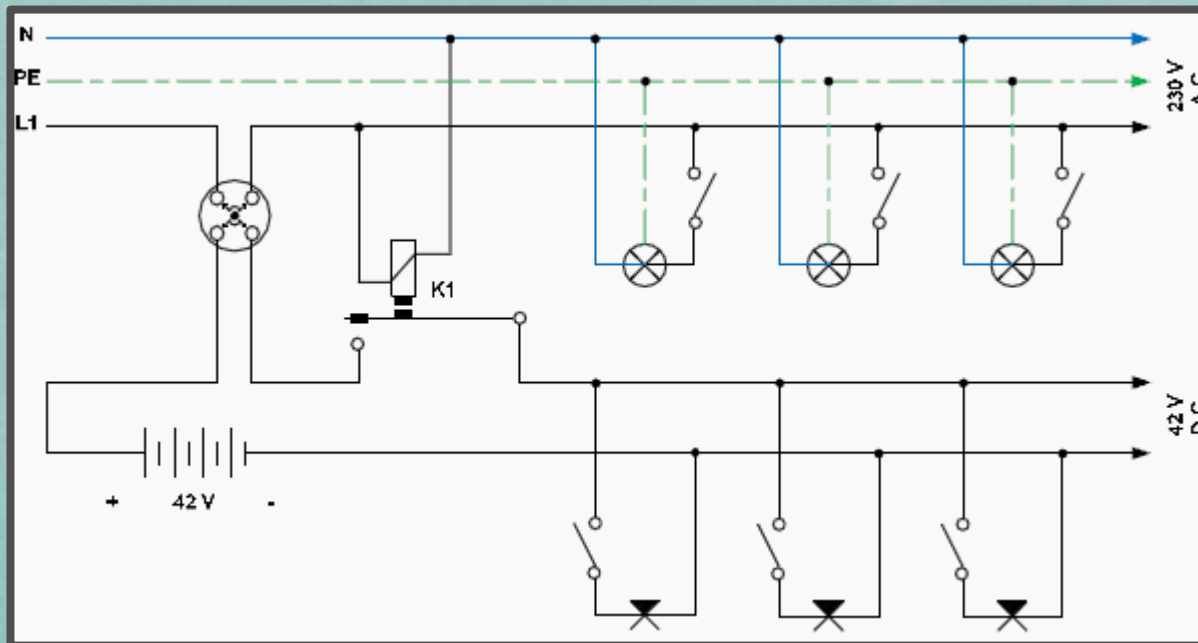
TYPE OF DRAWINGS

PLOT OF SCHEMATIC DIAGRAMS



TYPE OF DRAWINGS

PLOT OF CONNECTION DIAGRAMS



PROCESS OF DRAWINGS

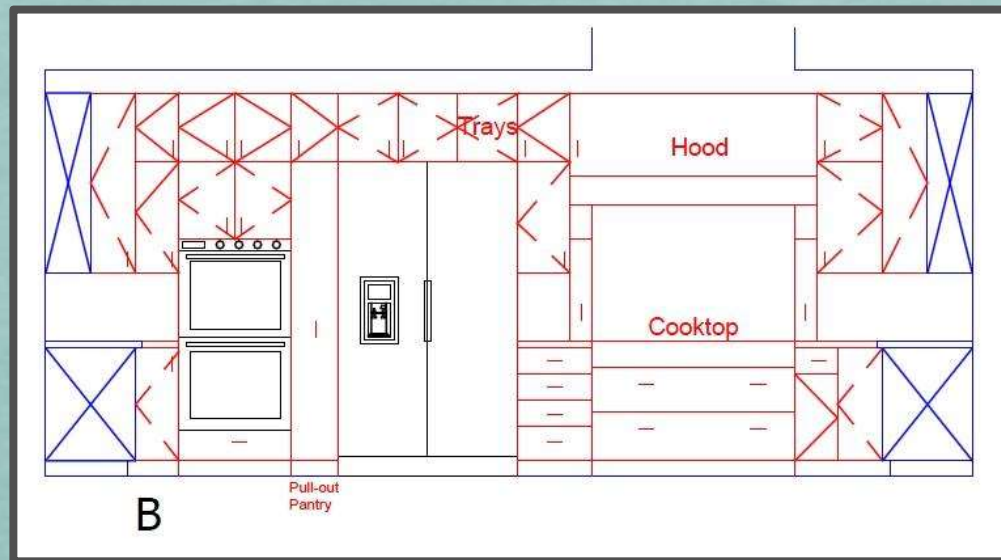
FLOOR PLAN

- * showing scale of a view from above
- * showing relationships between rooms, spaces and other physical features
- * Dimensions are drawn between the walls to specify room sizes and wall lengths



TYPE OF DRAWINGS

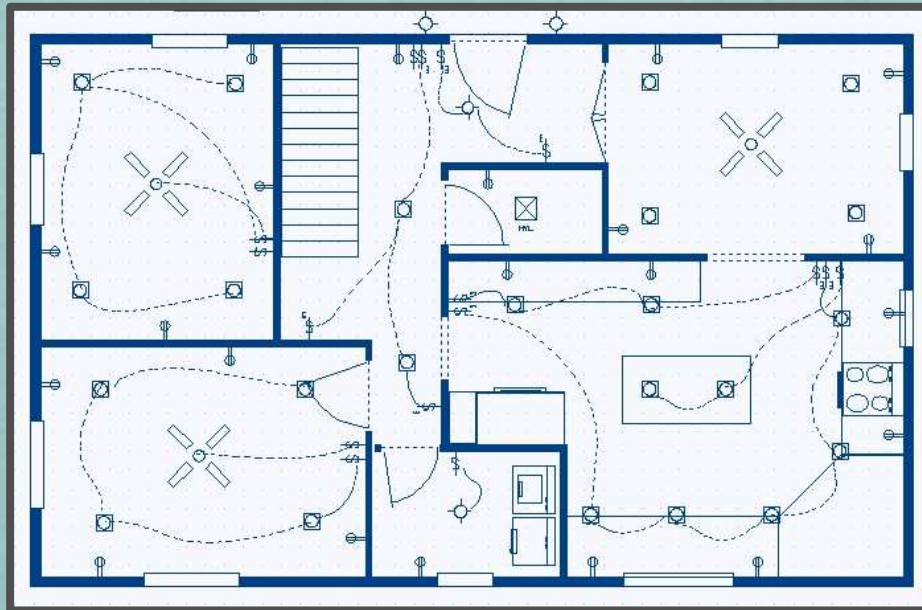
ELEVATION DIAGRAM



A non-perspective drawing of a property from the front, rear, or side that indicates how the planned or existing structure is situated.

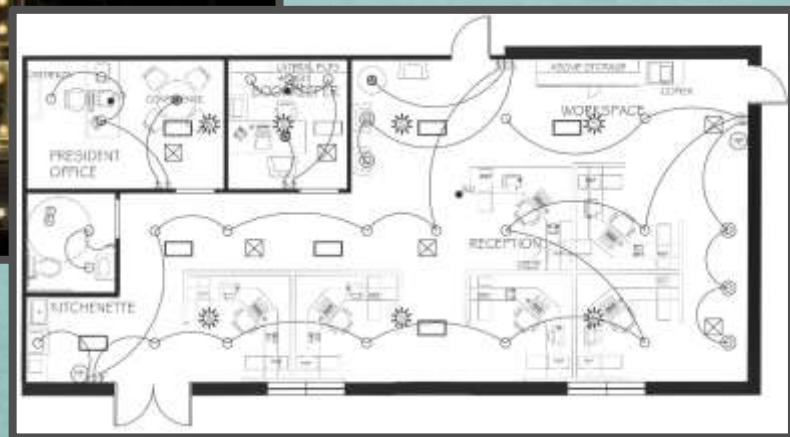
TYPE OF DRAWINGS

FAN PLAN



TYPE OF DRAWINGS

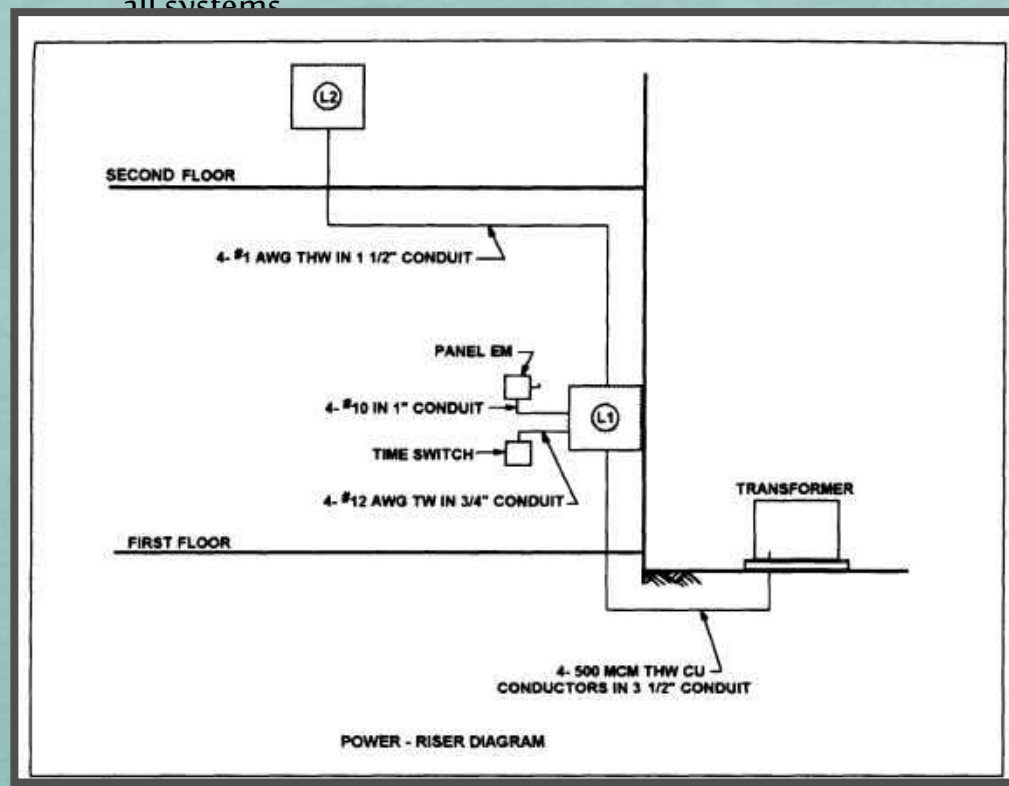
LIGHTING PLAN



PROCESS OF DRAWINGS

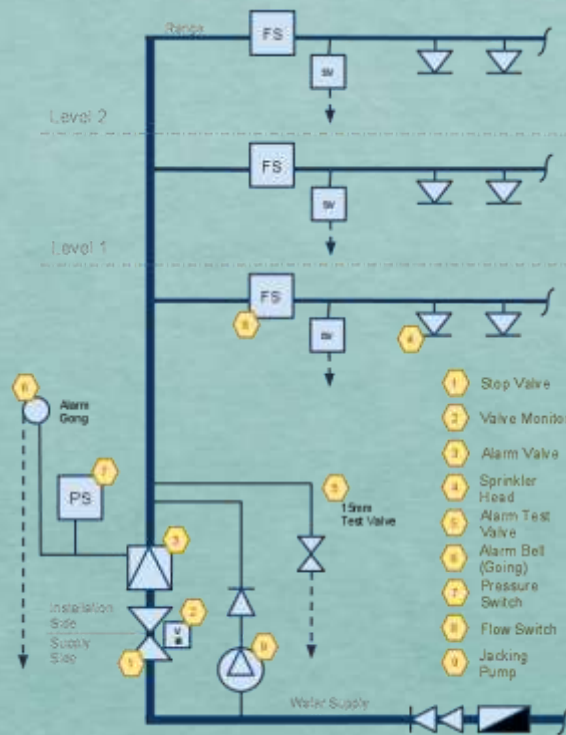
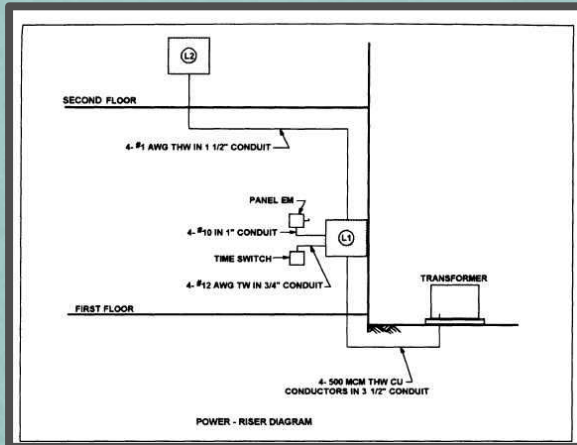
POWER RISING DIAGRAM

- * Illustrate the power distribution on each floor of the building and to each electrical panel
- * Should be updated every 1-3 years to provide accurate baseline information on all systems



TYPE OF DRAWINGS

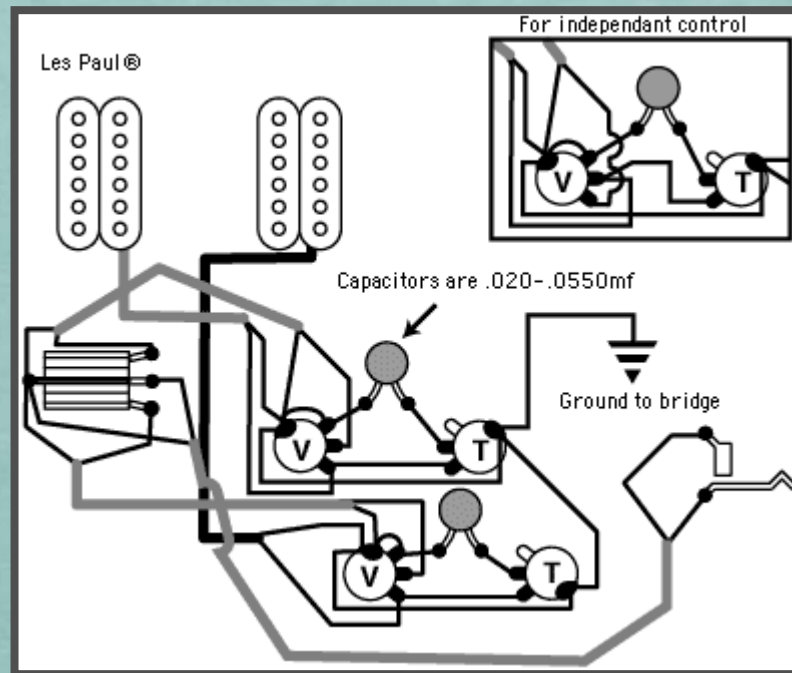
FIRE SPRINKLER SYSTEM



PROCESS OF DRAWINGS

WIRING DIAGRAM

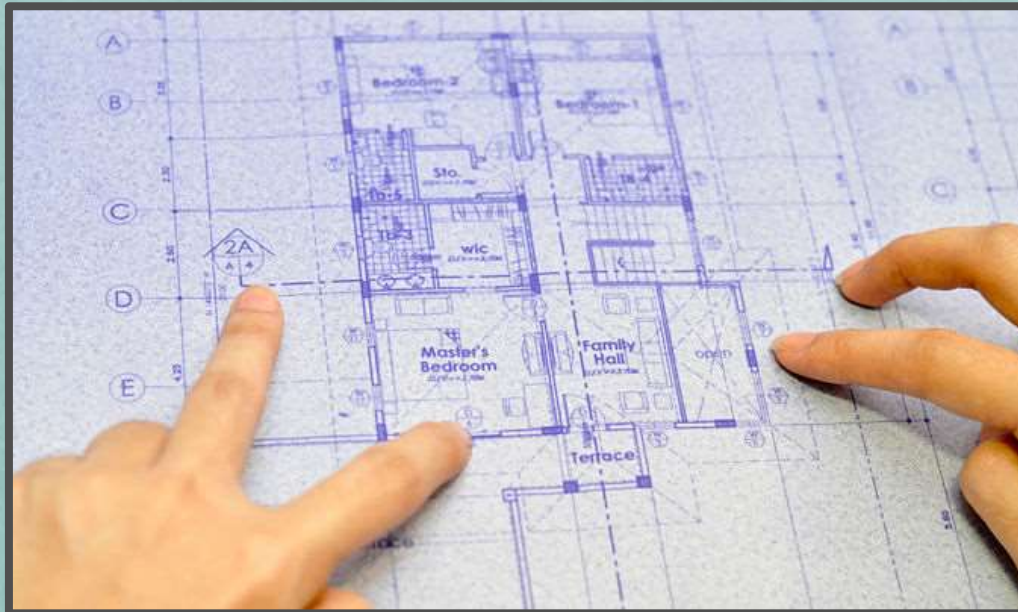
- * simplified conventional pictorial representation of an electrical circuit.
- * shows the components of the circuit as simplified shapes, and the power and signal connections between the devices.



PROCESS OF DRAWINGS

COMBINE WITH CONSTRUCTION
DRAWINGS

* combination of technical drawing of other engineers



REFERENCES

- ★ <http://www.jobguide.thegoodguides.com.au/occupation/Electrical-Engineer>
- ★ Jones, D.A. (1991), "*Electrical engineering: the backbone of society*"

Electrical Drawings

- ★ <http://faculty.frostburg.edu/>
- ★ www.akitarescueoftulsa.com/
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THANK YOU!

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