203: Electrical installations technology  
**Handout 3: Drawings**

**Learning outcome**

The learner will:

1. know how to obtain technical information.

**Assessment criteria**

The learner can:

2.2 recognise different **drawing types.**

**Range**

**Drawing types**: As fitted drawings, circuit diagrams, block diagrams, schematics, wiring diagrams, bar charts.

**Drawings**

Various types of drawings can be used to convey information relating to all aspects of electrical installations. These include the following:

* as fitted drawings
* circuit diagrams
* block diagrams
* schematics
* wiring diagrams
* bar charts.

**Architectural plans including as fitted drawings**

These are the types of drawing most likely to be encountered by installation electricians. They show the layout of the building and the position of accessories and equipment, using standard symbols.

At the design stage, the electrical company will receive the plans along with the specification. A typical architectural plan can be found on the following page. This will show on a scale drawing the position of all accessories and equipment and will allow the designer to determine the material requirements for the job, and hence accurate pricing.

During the installation phase, the electrician will use the scale architectural plans to position accessories and equipment accurately. For example, when positioning a socket outlet, the distance to the socket outlet to a fixed point (eg a wall) will be measured on the plan. This will be scaled up to give the actual ‘real life’ measurement.

When the installation is complete, there may be some accessories and equipment that, by mutual consent with the customer, were positioned differently from the original plans. These changes will be marked on a set of plans referred to as the ‘**as fitted**’ drawings to reflect what was actually installed. These are handed over to the customer with the installation pack.

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| --- |
| 01 Plan.png |

**Circuit diagrams**

A circuit diagram is the representation of a circuit arrangement that permits easier understanding of how the circuit works. In practice, the actual wiring may be different to the circuit diagram. An example of a circuit diagram is shown below:

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| 02 Circuit diagram.png |

**Wiring diagrams**

A wiring diagram shows how a circuit is actually wired in practice. This may result in a diagram that makes it harder to understand how the circuit functions. An example wiring diagram is shown below:

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| 03 Wiring diagram.PNG |

**Block diagrams**

A block diagram does not show individual conductors or cables but the sequence of equipment instead. For example, the diagram below shows the supply sequence to an installation:

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| 04 Block diagram.png |

**Schematic diagrams**

These are very similar to circuit diagrams in that they show how a system works rather than how it is wired. They are generally used on larger control systems, as they can make fault-finding much simpler. An example is shown below:

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| 05 Schematic.png |

**Bar charts**

Bar charts can be used for many purposes but the most common are involved in planning the sequence of works; this can be represented graphically by bar charts, as shown below:

|  |  |
| --- | --- |
| 06 Bar chart.png | 07 Bar chart.png |

The chart on the left indicates when certain activities are due to start and finish. This will allow the allocation of labour and ordering of material to be carried out. The chart on the right indicates progress of the job. For example, if we have just completed week three, you can see that activities one and two have been completed on time but task three is one week behind. We can also indicate on the bar chart those activities that cannot start until others have been completed.