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Practical Jobs 1 to 8

PVC Wiring

Practical Job 1

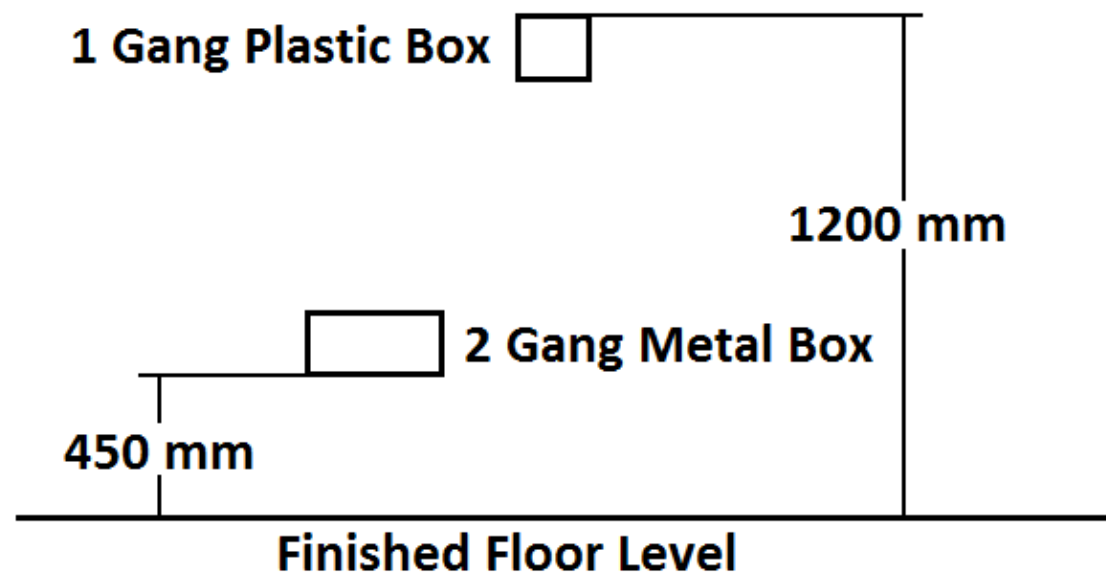
Site Skills (Power Tools)

Learner Name Start Date

Instruction to Learner

Using either an electric drill or battery drill fitted with a 5.5 masonry bit, securely fix, using countersunk screws for the one gang plastic box and using round head screws a 2 gang metal socket box to the following surfaces:

- A) Composite block wall screw length minimum of 1½ inch N°8 and red wall plugs.
- B) Brick wall screw length minimum of 1 inch N°8 and red wall plugs
- C) Wood surface (drill and red wall plugs not required) screw length minimum of ¾ inch N°8



Dimensions may alter

Assessor Date

Practical Job 2

PVC Wiring Terminating (Flexible Cable)

Learner Name Start Date

Instruction to Learner

Prepare and terminate a suitable length of flexible cable into each of the following electrical accessories.

1. BS1363 13 amp fused plug top



2. Ceiling rose



3. Lampholder



4. BS EN 60309-2 3 pin industrial plug

Marking Criteria	13 amp plug	Ceiling rose	Lamp holder	3 pin plug
Job carried out in a safe manner				
All accessories undamaged and assembled				
Acceptable insulation removed				
Correct termination of conductors				
Acceptable amount of spare at terminations				
Terminations tight				
Conductor insulation not damaged				
Sheath taken into accessories				
Use of cord grip				
Core free from whiskers				
Worked safely				
Work area tidy				

What did you learn...

Assessor Feedback

Assessor Date

Practical Job 3

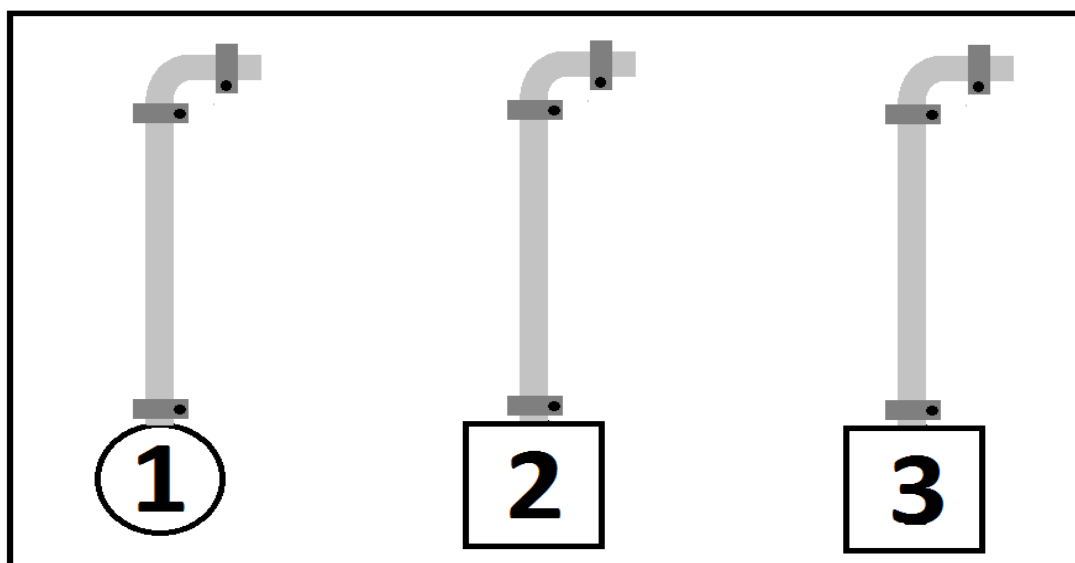
PVC/PVC Flat Profile Cable Wiring (Into Accessories)

Learner Name Start Date

Instruction to Learner

On a wooden board, fix one lighting pattress and two surface light switch boxes. Clip the following cables and make off the following accessories into the boxes you have already fixed.

1. Surface clip one 1.0mm² thermoplastic PVC flat profile twin and CPC cable (brown & blue conductor colours) approximately 500 mm long with one smooth right angle bend and terminate end into a ceiling rose.
2. Surface clip one 1.0mm² thermoplastic PVC flat profile twin and CPC twin brown cable (brown & brown conductor colours) approximately 500 mm long with one smooth right angle bend and terminate end into a one gang one way switch.
3. Surface clip one 1.0mm² thermoplastic PVC 3 core flat profile and CPC cable (brown, black and grey conductor colours) approximately 500 mm long with one smooth right angle bend and terminate end into a one gang two way switch.



Assessor Date

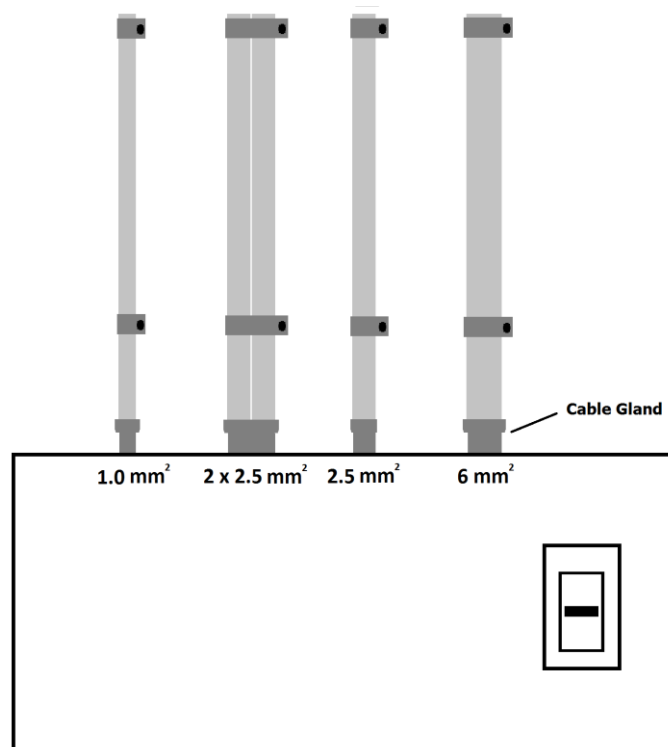
Practical Job 4

PVC/PVC Flat Profile Cable Wiring (7 way consumer unit)

Learner Name Start Date

Instruction to Learner

On a wooden surface at a position identified by your instructor, mount a metal 7 way consumer unit. Install the PVC flat profile twin and CPC cables as per drawing one 6.0 mm², one 2.5 mm², two x 2.5 mm² and one 1.0 mm²



Consumer unit layout

BS EN 60689 circuit breaker number one is 32 amps

cooker circuit

BS EN 60689 circuit breaker number two is 32 amps ring
final circuit

BS EN 60689 circuit breaker number three is 20 amps an
A 3 radial socket circuit

BS EN 60689 circuit breaker number four is 6 amps
lighting circuit

Assessor Date

Practical Job 5

PVC/PVC Flat Profile Wiring 1 (Simple Lighting Circuit)

Learner Name Start Date

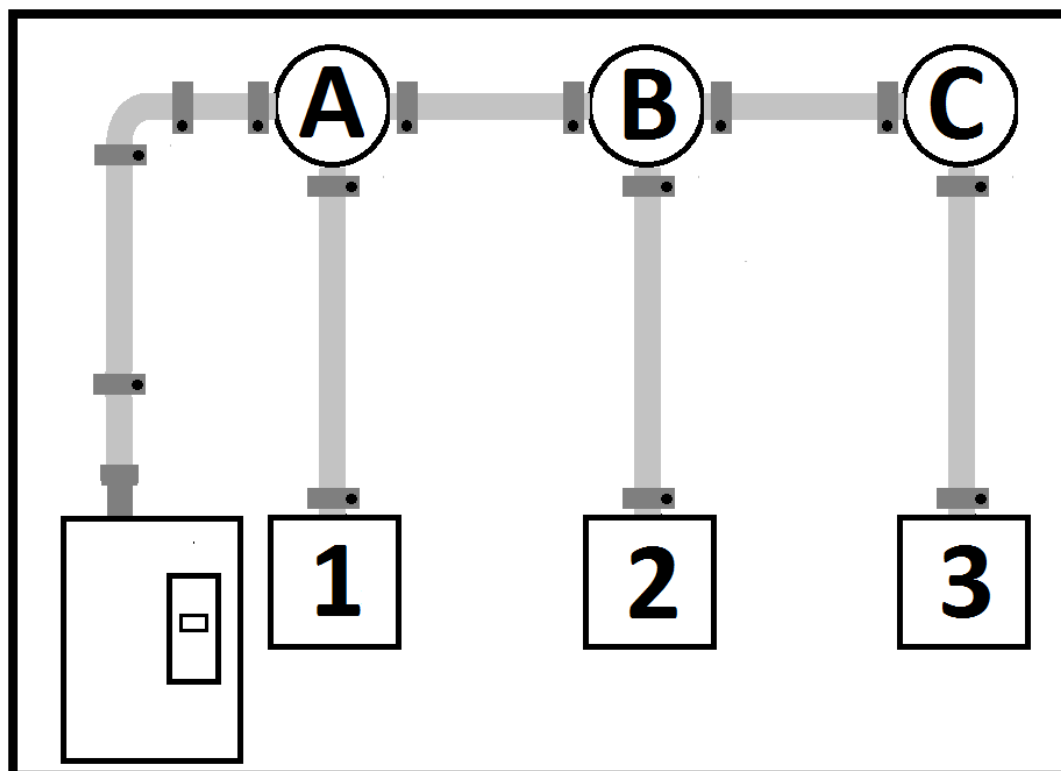
Instruction to Learner

On a wooden board layout the 3 surface light switch boxes, 3 round lighting pattress and 1 two way 45 amp consumer unit. Then surface wire and clip in flat profile 1.0mm² thermoplastic PVC and CPC cables to produce the lighting circuit shown below. The circuit should be tested and marked after each of the '3' stages. All cables should be clipped straight, flat and have acceptable bending radius.

Stage 1 : Light 'A' switched via switch '1' (1 way switching)

Stage 2 : Light 'B' switched via switch '2' (1 way switching)

Stage 3 : Light 'C' switched via switch '3' (1 way switching)



[illegible]

Assessor Date

Practical Job 6

PVC/PVC Flat Profile Wiring 2 (Simple Lighting Circuit)

Learner Name Start Date

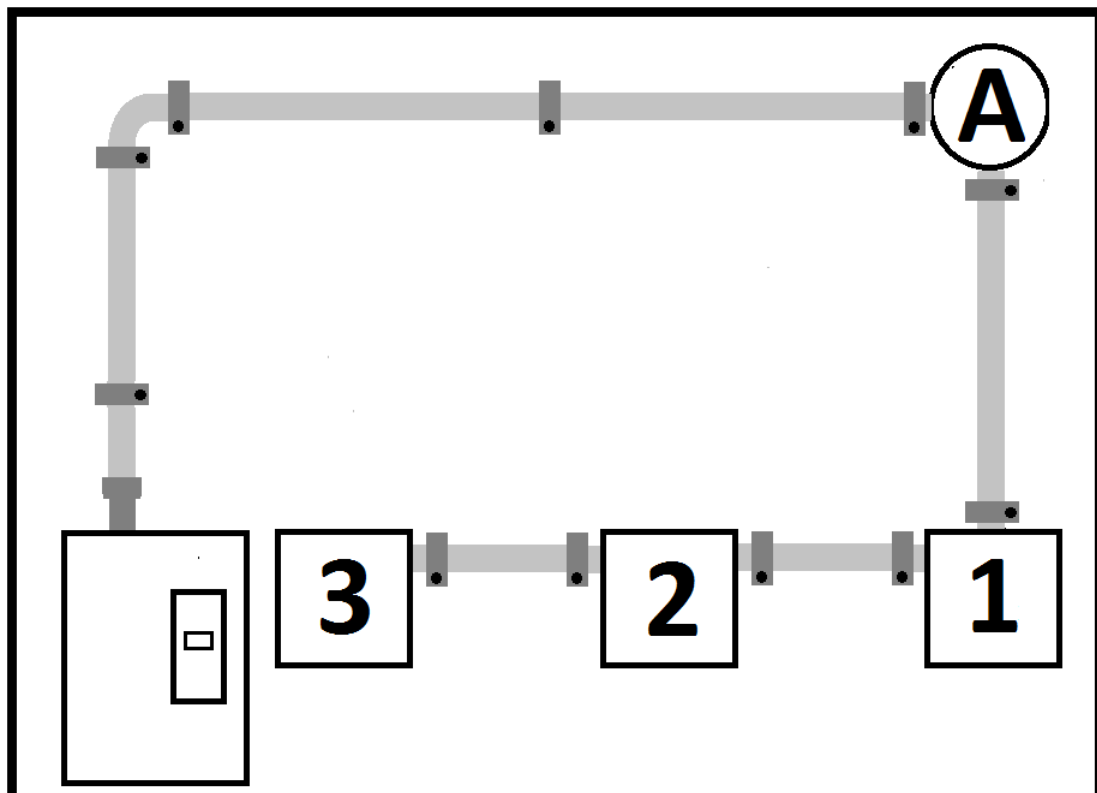
Instruction to Learner

On a wooden board layout the 3 surface light switch boxes, 1 round lighting pattress and 1 two way 45 amp consumer unit. Then surface wire and clip in flat profile 1.0mm² thermoplastic PVC and CPC cables to produce the lighting circuit shown below. The circuit should be tested and marked after each of the '3' stages. All cables should be clipped straight, flat and have acceptable bending radius.

Stage 1 : Light 'A' switched via switch '1' (1 way switching)

Stage 2 : Light 'A' switched via switch '1' and '2' (2 way switching)

Stage 3 : Light 'A' switched via switch '1', '2' and '3' (2 way and intermediate switching)



[illegible]

Assessor Date

Practical Job 7

PVC/PVC Flat Profile Wiring 3 (Simple Socket Circuit 'A3')

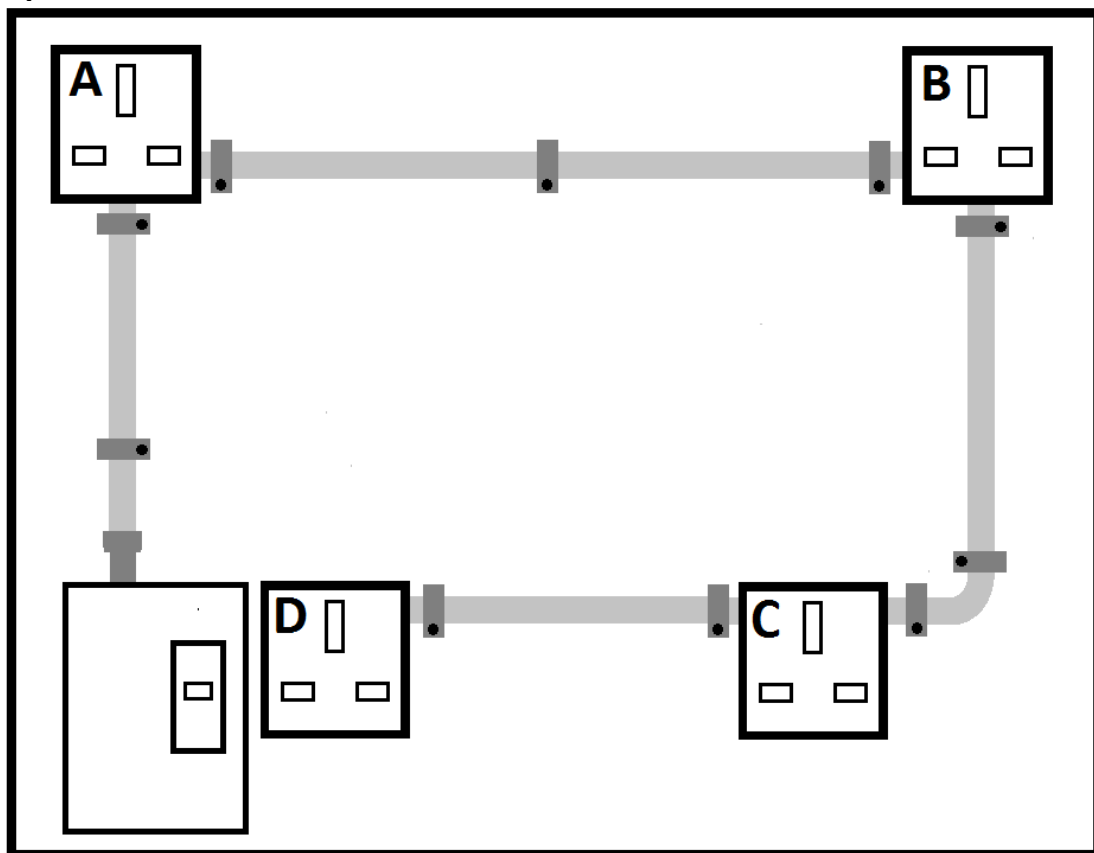
Learner Name Start Date

Instruction to Learner

On wooden boards to positions identified by the drawing, layout and fix four surface socket boxes and one two way 45 amp consumer unit. Then surface clip and wire in flat profile thermoplastic PVC 2.5 mm² twin and CPC cables in the form of an A3 radial circuit from A to D.

The following test must be carried out

- A) Continuity of CPC and Polarity
- B) Insulation resistance



Testing Sheet

PVC/PVC Flat Profile Wiring 3 (Simple Socket Circuit 'A3')

Test Results

[illegible]

Practical Job 7

PVC/PVC Flat Profile Wiring 3 (Simple Socket Circuit 'A3')

Marking Criteria	A3 Radial
Job carried out in a safe manner	
All accessories undamaged and assembled	
Acceptable insulation removed	
Correct termination of conductors	
Acceptable amount of spare at termination	
Terminations tight	
Terminations doubled over	
Cables clipped straight and flat	
Acceptable clipped distance	
Acceptable bending radius	
Circuit functional	
Circuit test results completed	
Correct torque settings	
Worked safely	
Work area tidy	

Assessor Date

Practical Job 8

PVC/PVC Flat Profile Wiring 4 (Simple Socket Circuit 'A1')

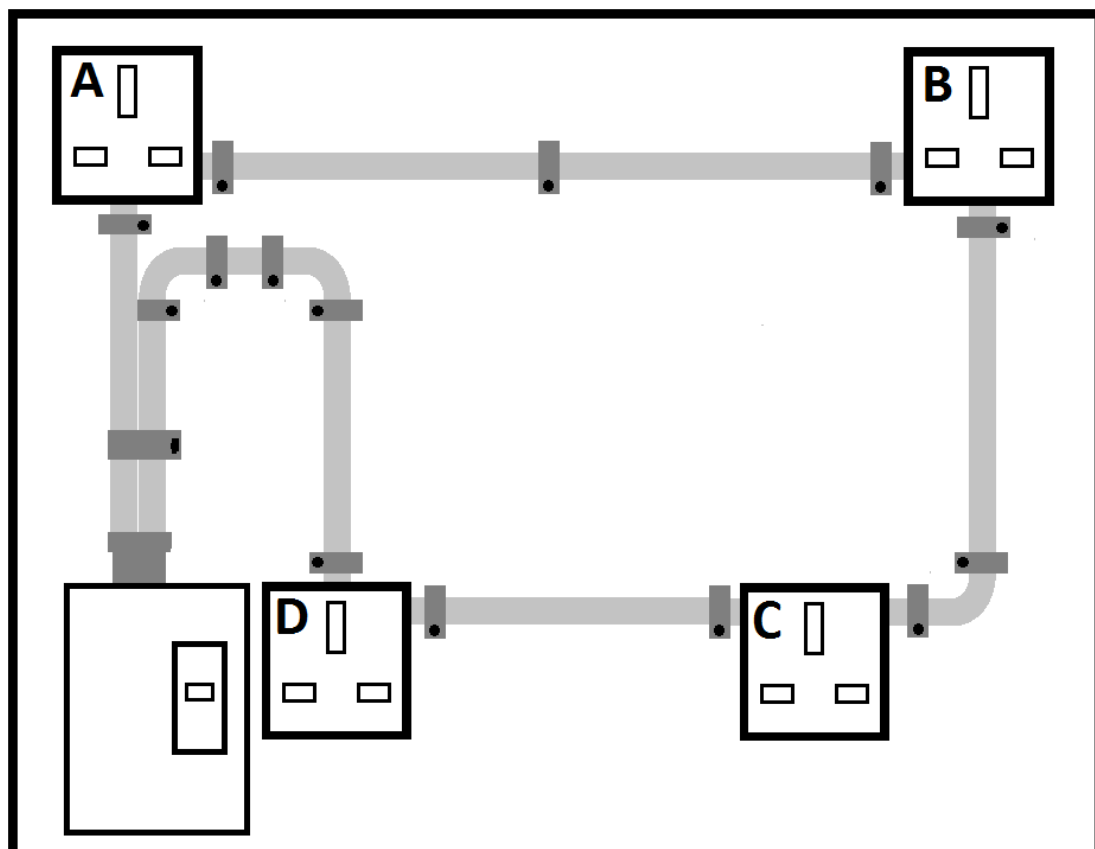
Learner Name Start Date

Instruction to Learner

Next convert your A3 radial circuit into an A1 ring final circuit as identified by the drawing using flat profile thermoplastic PVC 2.5 mm² twin and CPC cable. Remember the cable gland in the top of the consumer unit will need changing.

The following test must be carried out

- A) Continuity of CPC
- B) Continuity of ring final circuit and polarity
- C) Insulation resistance



Testing Sheet

PVC/PVC Flat Profile Wiring 4 (Simple Socket Circuit 'A1')

Test Results

Circuit description	Fuse size and type	Cable size mm ²		Ring Final Circuit Continuity Ω			Continuity Ω R1+R2	Insulation resistance M Ω			Polarity ✓
		Live	CPC	r1	rn	r2		L/N	L/E	N/E	

$$R_1 + R_n = \frac{\text{End to end line } r_1 + \text{End to end neutral } r_n}{4}$$

$$R_1 + R_2 = \frac{\text{End to end line } r_1 + \text{End to end c.p.c } r_2}{4}$$

Practical Job 8

PVC/PVC Flat Profile Wiring 4 (Simple Socket Circuit 'A1')

Marking Criteria	A1 Ring Final Circuit
Job carried out in a safe manner	
All accessories undamaged and assembled	
Acceptable insulation removed	
Correct termination of conductors	
Acceptable amount of spare at termination	
Terminations tight	
Terminations doubled over	
Cables clipped straight and flat	
Acceptable clipped distance	
Acceptable bending radius	
Circuit functional	
Circuit test results completed	
Correct torque settings	
Worked safely	
Work area tidy	

Assessor Date

COMMON TOOLS

Tape Measure (5m Steel)
Posidrive Screwdriver
Junior Hacksaw
Bradawl
Terminal Screwdriver
Cross Pein Hammer
2.5lb Lump Hammer
Bolster Chisel
Stripping Knife
Pliers
Side Cutters
Medium Flat Tip Screwdriver
Hacksaw min 24TPI
Engineers File
45x45x100mm Wooden Block
Set HSS Drill Bits (sizes 3mm, 6mm, 10mm)
Engineers Vice
Centre Punch
Electric/Cordless Drill (with 110v Transformer & extension cable & safety sign) (or spare battery and charger if cordless)
Large Flat Tip Screwdriver
Conduit Bending Machine with 20mm former.
Reamer/Round File
20mm Stocks and die
Cutting compound
20/25 Bush Spanner
20/25 Internal Bush Spanner
Adjustable grips (water pump pliers)
Conduit Bending Machine (20mm Former)
20mm Conduit Bending Spring
Conduit Warming Cloth
5.5mm Masonry Drill Bit

Draw Through Tape
Ratchet Crimping Tool Large and Small
Combination Wire Stripper
20mm Hole Saw and Mandrill
Scriber
Combination Square (set square)
Adjustable Spanner
Open Ended Spanners for SWA Gland 20/22 or 21/23
Long Spirit Level and Short Spirit Level
20mm Spade Bit
Mitre Block
Noga Burr Removal Tool
RJ45 Crimp Tool
CAT5 RJ45 Punch Down Impact Network Tool
Hawk
Tin Snips
Trowel
Float
Pad Saw
Emery cloth for removing galvanised finish from trunking
Wooden Step Ladder or Platform
Pencil
PVC Insulation Tape
Torque Screwdriver
Pot Wrench
Joistripper
MICC Crimping Tool

Test Equipment

Insulation Resistance Tester Set To 500V/1000M Ω

Low Reading Ohm Meter 0-10 Ω (Continuity Tester)

1 Set of Test Leads, Crocodile Clips and a Link

Test socket adaptor

Plug in Socket Tester

Voltage indicator **to GS 38** and Proving Unit (if require to prove safe isolation)

PPE:

Goggles, Ear Defenders, Hardhat, Steel Toed Footwear,
Dust Mask, Overalls, Barrier Cream if required.