**Electrical Assistant Grounding file**

### Copilot Agent Note:

|  |  |
| --- | --- |
| **Field** | **Content** |
| Purpose | encompasses the whole Interpretive layer or Agent guide |
| Trigger | Any use of the agent. |
| Action | To guide the interpretive layer of the agent |
| Tags | #master narrative |

#MasterNarrative

This grounding file outlines the general structure of the work process. The Electrical Assistant has two other agents as children. The Planning Assistant aids organisation, while the Design and Costing Agent designs electrical systems and generates quotes.

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1. Planning and Organisation
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4. EICR process
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   2. Pre-inspection areas of focus and sampling
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   4. Inspection approach
   5. Common deviations from my working principles
   6. Coding guidance
   7. Paperwork
   8. Remedial actions
   9. Guidance note 4 contains details on EICR reporting. This is a reference document.
5. Installation process
   1. Pre-install discussion of work
   2. Pre-install requirement for paperwork or electrical system checks and testing
   3. Pre-install ordering of materials
   4. Earthing system
   5. Cable Routing
   6. 1st Fix
   7. 2nd Fix
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13. Car Chargers

**1) Planning and Organisation**

### Copilot Agent Note:

|  |  |
| --- | --- |
| **Field** | **Content** |
| Purpose | Provides details on the personalised way of working for Gareth Youens. |
| Trigger | The use of the Planning Assistant. |
| Action | To guide the interpretive layer of the agent about organisation and planning on a personal basis for Gareth Youens. |
| Tags | #Productivity #ADHD |

#Productivity

The planning assistant efficiently organises Gareth Youens' schedule using connectors to streamline the process. By minimising planning and paperwork, more time is freed up for billable work.

**2)ADHD**

#Productivity

#ADHD

ADHD (Attention-Deficit/Hyperactivity Disorder) is a neurodevelopmental disorder in children and adults, characterised by inattention, hyperactivity, and impulsivity. Symptoms and severity vary, with genetic, neurological, and environmental factors implicated. With accurate diagnosis and tailored interventions like behavioural strategies, educational support, and medication, many people effectively manage ADHD and achieve success.

**3) Design and Costing**

### Copilot Agent Note:

|  |  |
| --- | --- |
| **Field** | **Content** |
| Purpose | Provides details on design and costing jobs |
| Trigger | The use of the Design and Costing Assistant |
| Action | To guide the interpretive layer of the agent when designing installs or costing for jobs |
| Tags | #Design #Costing |

The Design and Costing Assistant covers the end to end project management of the project life cycle.

#Design

When designing a new installation, the customers use expectations and end point requirements form the basis of the design of the system. A specification is produced which can then be costed.

#Costing

The specification feeds the costing model which produces a Statement of Works. This forms the basis of the quote for the customer.

**4) EICR Process**

### Copilot Agent Note:

|  |  |
| --- | --- |
| **Field** | **Content** |
| Purpose | Provides details on EICR work and reporting |
| Trigger | Anything to do with EICRs |
| Action | To guide the interpretive layer of the agent on EICR reporting |
| Tags | #EICR |

#EICR

1. Pre-inspection - discussions typically happen at the first point of contact. I discuss with the customer what the purpose of the report is and develop my approach based on their requirements. Then I will walk round the site and make some basic notes to help me produce the quote. These notes will include the number of boards, their size, number of circuits and how easily the system is accessible.

I ask if any earlier paperwork is available, as this gives a clearer understanding of the sampling requirements and can be referenced in my EICR report.

Many commercial clients require the reporting for Insurance purposes. It is important to check the insurance requirements before agreeing to do the work. Some commercial clients need fault-finding alongside the EICR report. I always make it clear that an EICR report does not include fault-finding, and this should be costed as a separate piece of work. Never quote for fault-finding as it needs to be charged for by the hour. It is impossible to create a quote, as by the nature of the issue, it is impossible to tell how long it will take.

I am not allowed to do EICR’s on rental properties as I do not have the C&G lv 3 in Inspection and Testing yet. I do not want to do rental EICR’s anyway as landlords tend to be tight and are not interested in the job doing well. They want it cheap and fast.

1. Pre-inspection areas of focus and sampling – Once the client has accepted the quote, I create a sampling schedule of the circuits. This takes guidance note 3 into account.
2. Pre-inspection equipment checks – I need to make sure I have the following equipment with me. My tester, r2 wandering lead, all 3 step ladders, my surface pro, and my hand tools.
3. Inspection approach – I walk the site a couple of times to see if anything sticks out like a sore thumb. While doing this I can get my head around a good place to set up and anything else I need to consider that I did not notice last visit. I start by looking at the earthing system. If possible, I will check Ze and then check the bonding. Then, I’ll systematically work through a board at a time doing the testing alongside the inspection. A good rule of thumb is 90% inspection to 10% testing.
4. Common deviations from my working principles – this often depends on there not being access to certain areas. If I can’t do certain tests or gain access to an area I will make a note to include in the report. I always try and find someone on site that understands enough about the reporting to discuss things with. This is not always the person I’ve been asked to do the report by. I can often miss doing insulation resistance tests if it is not possible to unplug everything.
5. Coding guidance – I’ve put together a separate file of coding guidance that I’ll collate information on at a later date. This file will build as I do more reports using this structure.
6. Paperwork- this is my largest area for improvement. It currently takes me far too long to do the reporting paperwork. I’d like to use the agent to help cut this time down and streamline the process. I’d also like to do this working within the framework of Cal Newports system of working. I will detail in more depth how I use both Planner and To Do to help with this. I’ve created certain buckets in To Do and Long-Term Goals and Quarterly Goals to further support this in Planner.

You can find a copy of the EICR paperwork here

EICR

1. Remedial Actions – at times I get sidetracked into completing remedial works while doing the EICR. This is not the way to do it. The report needs to be finished and written up before I move on to completing the remedial work.

[Guidance Note 3](https://electricgcouk-my.sharepoint.com/:t:/g/personal/gareth_electricg_co_uk/EelVmnWRSdNEswIDu6aK55sBkgOjLaj5RcF6ezWc2BF-cw?e=0fqIWx)

EICR checklist Domestic

EICR checklist Commercial

[EICR](onenote:https://electricgcouk-my.sharepoint.com/personal/gareth_electricg_co_uk/Documents/IT/Notebooks/Electric%20G%20Ltd/EICR.one#&section-id=13dc1de3-5779-2345-9dd0-a7298ccde78d&end)  ([Web view](https://electricgcouk-my.sharepoint.com/personal/gareth_electricg_co_uk/_layouts/15/Doc.aspx?sourcedoc=%7Bad77d23d-251f-47ee-814c-936d882f946c%7D&action=edit&wd=target%28EICR.one%7C13dc1de3-5779-2345-9dd0-a7298ccde78d%2F%29&wdorigin=717&wdsectionfileid=e153376c-b746-4bc5-a8d8-4284813ca879&wdpreservelink=1))

EICR - [Electrical Installation Condition Report.pdf](https://electricgcouk-my.sharepoint.com/:b:/g/personal/gareth_electricg_co_uk/EWhb9UgUH3lLhk7jBIy9VxoBfPVNcAxqid7mhMHKnvoRiA?e=oUOv1g)

**5)Installation process**

### Copilot Agent Note:

|  |  |
| --- | --- |
| **Field** | **Content** |
| Purpose | Provides details on installation work |
| Trigger | Anything to do with Installs |
| Action | To guide the interpretive layer of the agent on replies to Installation questions. |
| Tags | #Install |

#Install

The installation process is different in each case, but I want to draw some common themes that can be applied across installs.

1. Pre-install discussion of work. It’s essential to have a robust and good-quality costing model in place. This uses the information gathered in this discussion and is also flexible to deal with client changes and tracks them against the original costing. A good feel for the figures is essential.

What are the customer’s requirements? And if the customer does not know, then you need to make some suggestions. Doing an EICR before any major work is recommended, but not always acceptable to the customer. If the customer doesn’t want an EICR, it’s probably not worth doing the work for them. I’ve learned this from experience.

The pre-pricing discussion involves reviewing the current installation and discussing the options for the installation.

1. Pre-install requirement for paperwork or electrical system checks and testing. Do an EICR it if the paperwork isn’t in place or past the recommended time for an EICR.
2. Pre-install ordering of materials. This will be automatically be run by the Design and Costing Agent. Otherwise, use by spreadsheet in the meantime.
3. Earthing system, I like to start by installing the main protective conductor and the bonding conductors.
4. Cable routing, decide where the main runs are going to be. Ideally, giving access across the whole area you’re working in.
5. 1st Fix, you can very rarely pull all the cables in at once, but it is best to do as many as possible, watching out for burning the cables on bottlenecks or touch points. The first fix very much depends on what areas you can work in. You need to adapt based on what’s available.
6. 2nd Fix, once the other trades have been in you can second fix the wiring system. Concentration is vital for me at this stage. I can easily think I’m near the finish line and lose concentration. Good quality connections are vital and will show up in the testing if they have not been conducted well.
7. Testing, a full range of tests and applicability can be found in the following file under the section Testing. [Testing](onenote:https://electricgcouk-my.sharepoint.com/personal/gareth_electricg_co_uk/Documents/IT/Notebooks/Electric%20G%20Ltd/Testing.one#&section-id=b46eeaf3-1a8a-aa43-9861-939a1d76ae1d&end)  ([Web view](https://electricgcouk-my.sharepoint.com/personal/gareth_electricg_co_uk/_layouts/15/Doc.aspx?sourcedoc=%7Bad77d23d-251f-47ee-814c-936d882f946c%7D&action=edit&wd=target%28Testing.one%7Cb46eeaf3-1a8a-aa43-9861-939a1d76ae1d%2F%29&wdorigin=717&wdsectionfileid=78f0bd9e-c654-46a5-a0f9-cabb3c9621d5&wdpreservelink=1))
8. Paperwork, you can find a copy of the Installation certificate and a Minor Works Certificate here.

EIC - [Electrical Installation Certificate.pdf](https://electricgcouk-my.sharepoint.com/:b:/g/personal/gareth_electricg_co_uk/EVokMfSr7JtDkK611OseqbcBwzakSmpKirmDGF3CZXoogQ?e=hDCeNj)

MWC - [Minor Works Certificate.pdf](https://electricgcouk-my.sharepoint.com/:b:/g/personal/gareth_electricg_co_uk/EenPIrIDZfROhPZ4jU-T_AEBsdDzsOrNGPbO64YJboK5Hw?e=1NxteP)

1. Analysis – it’s always good to analyse each job if time allows. I’m going to gather all the information for each project in a Copilot Notebook and then analyse using the LLM in the notebook.

Installation checklist generated from the Design and Costing Assistant

**6)Testing and electrical theory**

### Copilot Agent Note:

|  |  |
| --- | --- |
| **Field** | **Content** |
| Purpose | Provides details on Testing |
| Trigger | Anything to do with Testing |
| Action | To guide the interpretive layer of the agent on Testing |
| Tags | #Testing |

#Testing

Measurements

|  |  |  |  |
| --- | --- | --- | --- |
| **Test** | **Description** | **Units of measure** | **Device** |
| Resistance | A measure of the resistance between 2 points. | Ohms (Ω) | Multimeter |
| Continuity | Checks if a circuit is complete | Yes/No | Probes  Multimeter |
| Current | A measure of the current flowing in a circuit | Amps (A) |  |
| Voltage | Tests the voltage of | Volts (V) | Multimeter |

Testing equipment

|  |  |  |  |
| --- | --- | --- | --- |
| **Device** | **Make** | **Model** | **Tests** |
| Voltage detector | Kewtech | Kewstick Uno | Non-contact Voltage detector,  Polarity. |
| 2 pole probe | Kewtech | KT1780 | Voltage, continuity, and phase rotation. |
| Multimeter | Kewtech | KT63 | Voltage, Polarity, Continuity, Insulation Resistance, Earth Fault Loop Impedance and RCD testing. |
| Clamp Meter | Kewtech | KT203 | Current and  Voltage |
| Light Meter | Kewtech | KEW337 | Light Levels |

#TestingInitial

Tests for Initial Verification

The tests for initial verification should be carried out in the following order, if at all possible.

1. continuity of protective conductors, inc main and supplementary bonding.
2. continuity of ring final circuit conductors,
3. insulation resistance
4. protection by SELV, PELV or by electrical separation
5. protection by barriers or enclosures provided during erection
6. insulation resistance of non-conducting floors and walls
7. polarity
8. earth electrode resistance
9. protection by automatic disconnection of supply
10. earth fault loop impedance
11. additional protection
12. prospective fault current
13. check of phase sequence
14. functional testing
15. verification of voltage drop

For detailed notes, follow the link below

[Guidance Note 3 Initial Verification](https://electricgcouk-my.sharepoint.com/:w:/g/personal/gareth_electricg_co_uk/EVcIb46UydVOk4a88FnerfoBS6wh9o2UAHGdi0TJLRhf-A?e=2Dl9lX)

Tests for EICR Reporting

Protective conductors continuity – r2 measurements of accessible exposed-conductive parts of current using equipment and accessories.

Bonding conductor continuity – r2 measurements of the main bonding conductor and supplementary bonding conductors.

Ring circuit continuity – r1 to r1, rn to rn and r2 to r2 if required

Polarity – origin of the installation, distribution boards, accessible socket-outlets and extremity of radial circuits.

Earth Fault Loop Impedance – Origin of the installation, distribution boards, accessible socket outlets, extremity of radial circuits.

Insulation Resistance – if possible, with both live conductors tested against earth.

Earth Electrode Resistance – against each rod with the links removed.

Functional Tests – of RCDs at x1 AC and the test button. MCBs, isolators and switching devices.

See the Design and Costing Assistant for Calculations

**7) Fault Finding**

### Copilot Agent Note:

|  |  |
| --- | --- |
| **Field** | **Content** |
| Purpose | Provides details on Fault Finding |
| Trigger | Anything to do with Fault Finding |
| Action | To guide the interpretive layer of the agent on Fault Finding |
| Tags | #FaultFinding |

#FaultFinding

Fault Finding relies on using your knowledge and experience of the tests and applying them in a problem-solving manner to an issue in a system. It’s a case of applying logic and reasoning to the problem to rule out what the problem can be.

Testing is used as appropriate, and you can use the full range of testing that’s available.

Fault Finding decision making tree

**8) Emergency Lighting**

### Copilot Agent Note:

|  |  |
| --- | --- |
| **Field** | **Content** |
| Purpose | Provides details on Emergency Lighting |
| Trigger | Anything to do with Emergency Lighting |
| Action | To guide the interpretive layer of the agent on Emergency Lighting |
| Tags | #EmergencyLighting |

#EmergencyLighting

There are two codes of practice concerning Emergency Lighting, these are BS 5266, which concerns the code of practice for Emergency Lighting and BS 50172, which concerns the code of practice for Emergency Escape Lighting Systems.

To comply with the standards, 5 compliance steps need to be looked at

1. Documentation
2. Certification
3. Inspection
4. Testing
5. Maintenance

Emergency Lighting Checklist

**Car Chargers**

#CarChargers

Car chargers are designated as special locations, so there are specific additional checks that must be performed.

An application must be made to the DNO before any work commences.

Car Charger Check List