

S.D.S.S. 1.2021

**SDCC
STANDARD SPECIFICATION**

**SPECIFICATION FOR ELECTRICAL INSTALLATIONS IN
HOUSING FOR S.D.C.C.**

ARCHITECTURAL SERVICES DEPARTMENT

January 2021
S.D.S.S. 1.2021

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1.0 General

- 1.1 The Electrical Installation must be carried out to the entire satisfaction of the County Architect (hereinafter referred to as The Architect) or Inspector on site. Electrical contractors engaged must be registered under the Safe Scheme.
- 1.2 The Electrical installation shall form part of the general Building Contract and the Building contractors shall be held responsible for the proper execution of the electrical work.
- 1.3 The Contractor shall supply all materials and labour necessary for the complete electrical installations as herein specified.
- 1.4 Where it is proposed to sublet the contract for the electrical installations in whole or in part, only current Registered Electrical Contractors of good standing will be permitted to undertake the work. The Architect shall be notified of the arrangements and work schedule for the completion of the work.
- 1.5 ALL ELECTRICAL WORK MUST COMPLY WITH CURRENT EDITION OF THE "NATIONAL RULES FOR ELECTRICAL INSTALLATIONS" IS10101:2020 (Incorporating Corrigendum amendment 1:2024, and Corrigendum 2:2025) PUBLISHED BY NSAI AND TO INCLUDE ALL AMENDMENTS/CORRIGENDA ISSUED SINCE PUBLICATION AT TIME OF CONTRACT. ALL SAFE ELECTRIC CERTIFICATION TO BE SIGNED OFF, FOR PRE-CONNECTION AND POST CONNECTION AND PRESENTED BEFORE HANDOVER OF DWELLINGS.
- 1.6 The electrical supply mains shall be installed by the ESB and does not form part of this contract.
- 1.7 The approximate positions of lights, switches and socket outlets are given on the relevant drawings and final positions shall be determined on site by the Architect or Inspector.
- 1.8 Mains and wiring routes shall be ascertained by the Contractor at an early stage so that ways may be left to receive them to avoid unnecessary cutting away. The routes shall be approved by the Architect or Inspector.

2.0 Notice to ESB

- 2.1 The Contractor shall be responsible for arranging electrical services supply to individual houses. A PVC duct complete with draw line shall be formed by the general contractor from the footpath to the point of entry at each house adjacent to the meter position. The final position of the meter and the Consumer Unit to be agreed on site with the Architect or Inspector.
- 2.2 ESB meters shall be located on an external position housed in standard approved meter cabinet. Meter cabinets to be installed in accordance with ESB requirements for Meter Cabinets at time of Contract.
- 2.3 Main overcurrent device. As per IS10101:2020 -533.3.2.3

A circuit breaker shall be provided as a main over current protective device with a rated short circuit capacity of 9KA. The MCB should be housed in a weatherproof enclosure rated IP55 with a hinged transparent lid.

3.0 Inspection of work and materials

- 3.1 All materials to be used and standard of work in this Contract shall comply with the relevant standard specification or an equivalent harmonised standard published by the appropriate authority of a member state of the EU.
- 3.2 Samples of materials or apparatus shall be forwarded to the Architect or Inspector for approval when requested during the progress of the work or prior to the commencement of the work, to include external fittings.
- 3.3 The Contractor shall not depart from the specification or the approved samples without written authorisation from the Architect or Inspector.

4.0 Examination on completion of work

- 4.1 The Architect or Inspector shall be notified formally when the electrical installation has been completed and is ready for testing. This provision is necessary to allow adequate time for electrical testing. The Main Contractor will ensure the permanent supply is installed and metered in his name and transferred later to SDCC tenant. This will ensure that pre connection and post connection tests are completed before handover of dwellings. Dwellings to be cleaned and fit for final electrical test.
- 4.2 Contractors to inform Councils Electrical Inspector prior to carrying out test for inspection and compliance with NSAI Regulations. Councils Electrical Inspector will witness Contractors testing procedure. Contractor to ensure all test sheets and Certificates are available on site to record test results. Contractor will ensure that Safe Electric Certificates are completed, signed off at Pre-Connection and post Connection and submitted to SDCC before handover of dwellings.

5.0 Cables

- 5.1 ALL CABLES PVC/PVC INSULATED SHOULD MEET MINIMUM REQUIREMENTS OF CLASS DCa, s2, d2, a2 OR HIGHER IN ACCORDANCE WITH IS. EN 50575 AND CARRY THE NSAI APPROVED MARK. Ref. IS10101:2020 - 527

- 5.2 Cable sizes shall be as follows: -

Lighting Circuits	1.5 sq. mm. PVC/PVC Single Core C/W ECC
Socket Circuits	2.5 sq. mm. PVC/PVC Twin and Earth
Cooker Circuit	6.0 sq. mm. PVC/PVC Twin and Earth
Immersion Circuit	2.5 sq. mm. PVC/PVC Twin and Earth
Minimum Size flexible Cable shall be 0.75 sq. mm.	

- 5.3 Slack cables shall be left at the back of ceiling roses, switches, and sockets to facilitate inspection, testing and maintenance. Slack to

be left on cables behind Consumer Unit to facilitate transfer of circuits when required.

6.0 Wiring

- 6.1 The wiring for each final sub-circuit shall be electrically separate from every other final sub-circuit. No borrowed neutrals on lighting circuits.
- 6.2 Wiring for lighting circuits to be full loop in system, with feed looped from light switch to light switch, no neutrals at switch boxes, and no permanent feeds at light points. The wiring for the lighting and socket circuits and all other circuits will be affected in cable concealed under the floorboards or in the attic space. All attic wiring to be clipped and run alongside of ceiling timbers. All wiring in attic space to be installed in a manner to prevent accidental damage or hazard to tenants using this space for domestic storage. Joist not to be grooved except where specifically authorised by the Architect or Inspector. Holes must be bored through centre of joists and spaced in accordance with best practice and Building Regulations Guidelines. Extra protection must be put in place for cable runs in other types of building construction like metal frame systems.
- 6.3 In solid walls all switch, socket and other circuit outlet drops shall be enclosed in approved plastic conduit and chased into walls.
- 6.4 No joint or junction boxes are permitted on any circuits or wiring concealed in the installation.

7.0 Conduit

- 7.1 In solid walls oval / round approved plastic conduit shall be sunk in solid block walls for each switch drop and socket outlet, conduit to be 20 mm minimum throughout installation.
- 7.2 Conduit work to be carried out in lengths without breaks. Where necessary conduit may be jointed in the approved manner as recommended by the manufacturer. All conduit round or oval must enter switch and socket boxes.
- 7.3 All wiring in stud partition to be enclosed in solid conduit (20 mm round).
- 7.4 Proper manufacturer's adaptors to be used for all conduit terminations at switch and socket boxes.

8.0 Earthing

- 8.1 Earthing shall be in accordance with "THE NATIONAL RULES FOR ELECTRICAL INSTALLATIONS" Edition 5.0 as published at time of Contract to include all amendments and alterations for compliance at time of Contract. Requirements for Earthing, Earth Electrode, Earthing conductor, Main Earth Terminal, Protective conductors, Main Protective conductor between the Main earthing terminal and the supply neutral (neutralising conductor) Main bonding conductors, and

Supplementary or local bonding conductors shall be in full compliance.

- 8.2 All earth, bonding connections to be connected to pipes etc., using crimped lug connection with correctly sized lugs using crimping tool.
- 8.3 At a minimum and as required in all metal plumbing and heating installation a 2.5 sq. mm earth wire will be run to form an equipotential bonding system to the Bath and all extraneous metal parts. This earth is to be increased to 4.0sq mm if there is no mechanical protection on cable.
- 8.4 A 2.5 sq. mm earth wire will be run to the kitchen sink bonding onto pipes and sink top from a local socket. This earth wire to be protected under sink from accidental snagging by end user. This earth is to be increased to 4.0sq mm if there is no mechanical protection on cable (Removed from IS10101:2020)
- 8.5 A 10 sq. mm earth wire will be run to the Gas Main and bonded at a point nearest to the Gas Meter of dwelling and protected with Denso Tape. (connection not to be made inside gas meter cabinet)
- 8.6 A 10 sq. mm earth wire will be run to the Hot Press and bonded to the Cold-Water Main in that location.
- 8.7 A 10 sq. mm earth wire will be run to the Boiler position and bonded to the central heating flow and return pipes.
- 8.8 A 10sq.mm earth wire will be run to an earth rod suitably located. The earth rod connection shall terminate in a 4" x 4" galvanised metal box c/w metal lid set into paving outside dwelling near meter position and connection to rod to be protected with denzo tape. Tag with 'Earth safety connection do not remove' to be attached to lid of box.
- 8.9 A 10sq.mm earth wire to be connected to steel structure of a steel frame construction building.

9.0 Main consumer unit

- 9.1 The Main Consumer Unit shall be a 2 Row MCB Board mounted on incombustible surface c/w with door to conceal all components to be in compliance with IS.EN61439/3. All circuits to be labelled with clear printed text. Allow capacity for future additional circuits.
- 9.2 The Consumer Unit position will be indicated on the house plans and the final position will be approved on site by the Architect or Inspector. Consumer Unit not to be mounted more than 2.15 Metres above finished floor level to top of highest protective device.

10.0 Typical consumer unit layout

Final arrangement can be agreed on site.

- 10.1 Protective devices /M.C.B. Ratings as follows:

MCB/s to be Type B to EN 60898 with short circuit breaking capacity of 3Ka (Heat pump MCB's to be C type and rated as per manufactures instructions)

Main Isolator – Double pole – (IS10101:2020 – 462.5)	80 Amps
Surge protection	32 Amps
Surge Protection Device – (IS10101:2020 – 534)	
Lights Circuit No. 1 - separate RCBO	10 Amps
Lights Circuit No. 2 - separate RCBO	10 Amps
Photovoltaic circuit - separate RCBO	20 Amps
Cooker Circuit	32 Amps
Smoke / Heat Alarm /Carbon monoxide alarm	10 Amps
Ventilation system	10 Amps
RCD 2 Pole-A type 30ma trip – 63 Amp rating	63 Amps
Kitchen Socket Circuit (Radial) separate RCBO Fridge Freezer	20 Amps
Kitchen Sockets Circuit (Radial)	20 Amps
Kitchen Sockets Circuit (Radial)	20 Amps
Gas Central Heating Circuit <u>or</u>	10 Amps
Electric Heat pump system – as per manufactures installation instructions	
Sockets Lounge/Hall Circuit (Radial) or (Ring Main)	20 Amps
Sockets Bedrooms/Landing Circuit (Ring Main)	32 Amps
Immersion Heater Circuit	20 Amps

16 sq. mm PVC/PVC Main to be mechanically protected against corrosion from insulation in cavity wall along its length between Consumer Unit and Meter Cabinet.

11.0 Lighting

- 11.1 Light switches to be Bakelite flush type 5 Amp. Extra wide rocker, suitable for disabled persons use, conforming to I.S. EN 60669 / BS. 3676 or equivalent approved.
- 11.2 All Light switches to be installed 1200mm above FFL – top of switch.

12.0 Lamp holders / light fittings

- 12.1 Lamp holders shall be white Bakelite cord grip type with solid plunger and flange holders and conform to BS 3676 rated to T2 for temperature.
- 12.2 Light fittings for bathroom / external use to have appropriate IP rating / LED / Listed on Triple E registered & CE approved.
- 12.3 Light fitting for Attic space to be enclosed bulkhead LED / low energy / Listed on Triple E registered & CE approved. To be switched via a labelled double pole switch with neon indicator

13.0 Ceiling roses

- 13.1 Ceiling roses shall be three plate, in white ivory Bakelite and securely mounted on a ceiling rose box and fixed to proper bridging grounds drilled for cables.

14.0 Flexible cable

- 14.1 All flexible cable to conform to the requirements of the National Rules for Electrical Installations. Pendant flex to be white PVC round insulated type.

15.0 Sockets outlets

- 15.1 Socket outlets to be white Bakelite 13 Amp. 3 pin shuttered pattern to I.S.411/B.S.1363 mounted in deep metal outlet boxes.
- 15.2 All above counter sockets in Kitchens to be switched type. All other sockets to be standard or switched type and mounted a minimum of 400mm above floor level, to bottom of socket.
- 15.3 Socket outlet points are indicated generally on Architects Drawings, but the actual position will be finally determined on site by the Architect or Inspector.
- 15.4 Double pole switches for inaccessible sockets in kitchen area are to be engraved with description of appliance.

16.0 Switch and socket outlet boxes

- 16.1 Switch outlet boxes shall be in hard PVC with metal inserts and of sufficient depth to contain the slack tails. Socket outlet boxes shall be metal or hard plastic boxes supported with timber grounds and screw fixed with non-corrosive screws.

17.0 Smoke / heat detectors / carbon monoxide detectors

To be in compliance with IS3218 2013 & part J building regulations 2014.
Appropriate certification required for categories of system installed (IS3218:2013 – Annex K – Model Certificate)

- 17.1 In the standard 3 bedroom dwelling the following smoke/heat detectors will be installed and proportionately for other smaller size dwellings as follows: -

LOUNGE	ONE SMOKE DETECTOR
HALL	ONE SMOKE DETECTOR
LANDING	ONE SMOKE DETECTOR
BEDROOMS	ONE SMOKE DETECTOR
KITCHEN	ONE HEAT DETECTOR

ATTIC ONE MULTISENSOR – (If PV or ventilation equipment present)

Detectors to comply with IS.EN14604.

Smoke detectors will be optical type 230 Volt with 10-year lithium non removable battery backup. All detectors will be interlinked to alarm simultaneously and will incorporate a hush button to cancel alarm for nuisance alarms. Detectors to be connected at the consumer unit on a dedicated circuit to a 10amp MCB. All detectors will be installed in strict compliance with the manufacturer's instructions.

17.2 Carbon Monoxide Detection

Location and type to comply with Building Regulations Part j 2014 / section 1.5 & I.S. 813 current editions.

To be mains powered with non-removable battery.

Carbon monoxide detectors to be interlinked with smoke & heat detectors.

17.3 Test / Hush / Locate switch

A Test /Hush / Locate switch is to be installed to allow quick audible identification of source of alarm.

18.0 Cooker outlet

- 18.1 Provide and install 45 Amp. Cooker control switch mounted on wall to one side of the cooker position above counter level.

- 18.2 Provide conduit sunk in wall, wired, from cooker switch to connection outlet 600mm above floor level in centre of space for cooker position.

19.0 Immersion heater

Provide and install Immersion Heater Dual Type (Bath/Sink) 3Kw/2Kw to EN60335.2.73 complete with single thermostat operation and METAL CAP COVER over connections. Note reset for thermal cut out to be accessible on cover of immersion cap. The Immersion to be controlled by dual Immersion switch with neon indicator, this switch to be located outside Hot Press.

Note. If an immersion controller is being installed linked to a photovoltaic installation a single immersion element maybe required instead of a dual type of element

20.0 Ventilation

- 20.1 Provide and install mechanical extract ventilation in kitchen capable of extracting at a rate of 60 Litres per second or at a rate of 30 Litres

per second where the ventilation extract is incorporated in a cooker hood.

- 20.2 In a bathroom, provide mechanical ventilation capable of extracting at a rate of 15 Litres per second. Extract fan to include over run timer. A three poll Isolator to be installed outside bathroom for fan isolation.
- 20.3 Central ventilation system may be installed servicing bathroom, WC & kitchen. All control wiring to be in accordance with manufactures installation instructions.

21.0 Telephone / television

Install 4 No. telephone points to Hall, Kitchen, lounge, and Main Bedroom wired back to external communications utility box in each dwelling. Each internal outlet to be RJ 11 Type socket for standard telephone connection. Install 2 No. television points to lounge and main bedroom wired back to external communications box in recommended type coaxial cable.

22.0 Circulation spaces

- 22.1 Lighting switches for circulation spaces shall be two way, and intermediate. type when required to provide adequate access to switching in these areas.

23.0 Clear away

- 23.1 The contractor shall be responsible for clearing away all debris, empty cartons etc., during the progress of his work and leave the entire works to the satisfaction of the Architect.

24.0 Alarm call system for disabled and elderly were installed

- 24.1 General
The system will be low voltage 230 Volt AC to 12 Volt Dc by means of a Power Unit C/W battery backup mounted beside Consumer Unit in Hall. A Sounder C/W Indicator Strobe to be mounted at high level on front external. Wiring to be .5sq mm PVC/PVC of approved type and quality for low voltage. System will be activated internally at push plates or pull chords and latch to 'ON' position until safe to reset. Option to install Radio Pendant as call facility to be provided. Option to install call facility to 3 / 4 other locations via auto dialler with line hunt facility to be provided. Alarm System Equipment to be Type Approved and submitted for approval to Architect or Inspector before installation.

HEIGHTS OF SWITCH AND SOCKET POSITIONS FOR DISABLED AND ELDERLY TO BE INDIVIDUALLY AGREED ON SITE BEFORE ELECTRICAL INSTALLATION COMMENCES TO THESE AREAS.

25.0 Gas central heating – refer also to SDCC Mechanical Spec

Electrical Contractor to provide all associated wiring and components for Gas Fire Central Heating System as for S Plan System (See Diagram at Appendix) as follows:-

- Switched Indicator Spur C/W 3 Amp Fuse.
- 2 Channel Time Clock C/W Separate programmable Hot Water / Heating Control. Mounted at Eye Level of Approved Type and user friendly. Time clock to be approved by Electrical Inspector.
- 2 X 2 Port motorised valves approved type and quality for **S Plan System**
- Cylinder Thermostat C/W fixed tamperproof adjustment set to 60°C.
- Room thermostat C/W neon to be installed in hall at a height recommended by manufactures instructions.
- Approved wiring centres at Boiler position and Hot Press, C/W clearly labelled terminal connections.
- Connection for Central Heating pump.
- All Hot Press Wiring to be installed, sleeved, and clipped with mechanical protection (See Diagram at Appendix) i.e., with PVC flexible conduit.
- A multicore cable to be used between time clock position and wiring centre in hot press with a minimum CSA of 1.5 sq.mm
- Final connection to electrical components in hot press to be heat resistant flexible cable.

25.1 HEAT PUMPS

All electrical work associated with heat pump installations to be in compliance with IS10101:2020 & manufactures instructions. MCB's supplying heat pump equipment to be C type.

26.0 Communal areas

- 26.1 Lighting switches to circulation spaces shall be two way, and intermediate when required to provide adequate access to switching in these areas.
Or movement/presence detectors installed in all areas with adequate time set for safe movement on stairwells and circulations areas.
Photocell control to be installed to ensure lighting does not remain on in periods of adequate natural daylight.
- 26.2 Emergency lighting to be designed and installed to current edition of IS3217.
A central test unit is to be installed to test emergency lighting.
- 26.3 Light fittings to be of a robust type and low energy – e.g., LED type.
Light fittings purposed to be in accordance with CIBSE lighting guide, listed on Triple E Register and be CE approved.

26.4 Fire alarm system to be designed and installed to current edition of IS3218.

27.0 27.0 door intercom system / door release

All apartments over ground floor level will be equipped with a door intercom system (c/w video facility). The intercom will be vandal proof and of approved type and manufacture, internal handset to be located in central position of apartment. Provision to be made for remote door release to door of common stairway at ground level for all apartments above ground level.

28.0 Schedule of electrical outlets - 1, 2, 3, 4-bed houses/ apartments

LOCATION	LIGHTING	SOCKETS	OTHER OUTLETS
	Points	Points	Points
Kitchen	1 Batten holder	3 Twin switched sockets over counter and 3 single sockets below counter switched via D/P switches. labelling of D/P switches to be engraved for inaccessible sockets	1 45 Amp Cooker Switch. D/P switches to be engraved. 1 Cooker Extractor Fan Heat Detector 3 Amp SW. Ind. Spur for Gas Boiler One Telephone Point. Carbon monoxide detector
Dining Room	1 Pendant	2 Twin	
Lounge	1 Pendant	4 Twin	Smoke Alarm One T.V. Point SW. Ind Spur for focal point fire One Telephone Point Carbon monoxide detector if required under part J
Hall	1 Pendant	1 Twin	Consumer Unit Smoke Alarm Test/Hush/Locate PV immersion controller Doorbell/Telephone Point Door Intercom / If Apart Carbon monoxide detector if required under part J
Larger Bedrooms 1 & 2	1 Pendant each	3 Twin each	One Telephone Point One TV point Main Bedroom Smoke Alarm
Smaller Bedrooms 3 & 4	1 Pendant each	2 Twin each	Smoke Alarm
Landing	1 Pendant	1 Twin	Smoke Alarm Carbon monoxide detector if required under part J
Bathroom	Enclosed LED light Fitting with appropriate IP rating fitted		Mechanical Ventilation Three pole isolator (except where central extract system is installed)
Hot Press			Immersion Heater controlled via immersion switch external to hot press.
Front Door Porch	Enclosed LED light fitting with appropriate IP rating fitted		
Back Door External	Enclosed LED light fitting with appropriate IP rating fitted		
Common Stairs of Apartments	Vandal proof type light fitting to be agreed with electrical inspector		Landlords Consumer Unit Emergency Lighting Test Unit & photocell control Fire Alarm Panel Door Intercom c/w video and common door release.

29.0 Solar photovoltaic (pv) power supply systems

To be in accordance with current NSAI National Rules for Electrical Installations IS10101:2020 – Part 7- 712, TGD Part B-Fire safety & current version of SEAI guidance document ‘Domestic Solar Photovoltaic Code of Practice for Installers’

- PV cells and modules to comply with standard test conditions (STD) as specified in I.S.EN 60904-3
- Installation of PV is to include control that ensures any excess solar power generated by the photovoltaics over the electrical load of the dwelling at any given time can be redirected to a designated water heating circuit. E.g., Immersion circuit or other electric heating load. This will prevent excess energy generated being returned to the national grid.
- Samples of all control and display /monitoring equipment to be provided on site with design /schematic drawings included.
- Isolation and switching - Isolation to be provided to isolate the inverter from both the a.c. and d.c. side.
Isolators fitted should isolate the PV inverter from the PV installation and from DSO network.
Automatic isolation of supply from PV array (whether AC or DC) is required with disconnection of ESB mains. This shunt should be located as close as possible to point of entry of PV cables into attic space.
- Warning Labels – As per example in SEAI guidance document Domestic Solar Photovoltaic Code of Practice
 - Warning labels highlighting the presence of the PV installation and instruction to isolate the PV before any work is carried out on the electrical installation is to be fitted at ESB networks meter cabinet, Consumer unit and at location of PV inverter.
 - Warning labels also to be fitted to all junction boxes for the PV generator and PV array indicating that the active parts inside the boxes may still be alive after isolation from the PV inverter.
- Certification – the correct level of certification is to be submitted for the PV installation. A sub system completion certificate will only cover wiring from the inverter to the PV array and generator.

Appendices

Information /diagram from Safe Electric Newsletter September 2018 edition

Wiring Diagram Central Heating S Plan

Hot Press Detail

Requirements for Earthing as published by NSAI.

Full details and installation code of practice can be found on the following link: <https://www.seai.ie/grants/home-grants/solar-pv/>

Below and on the page opposite are some of the requirements as shown in the SEAI code of practice. The information we have produced is intended only as a guide of a typical domestic installation based mainly on SEAI requirements.



String Inverters should be installed on a flat vertical, fire-resistant (concrete/masonry) surface, according to manufacturer's recommendations, with adequate surrounding space to allow for ventilation.

- Where string inverters are not installed on a fire resistance surface (such as in attic spaces), they must be installed on a fire-resistant substrate which extends to a minimum of 150mm beyond the edge of the inverter.



A separate metering device must be supplied, on the AC side of the inverter, which records the energy generated (in kWh) by the solar PV system. This metering device must be capable of accurately measuring, recording and displaying the energy generated and must not be reset during prolonged loss of power.



DC connectors (typically MC4) must be rated to IP21, class II, shrouded and must be labelled positive and negative.

DC Connectors must comply with EN 62852 and EN 50521



Tip. Poor DC connections are a common cause of fires. Plugs and socket connectors mated together in a PV system should be of the same type from the same manufacturer to minimise the risk of a poor connection. Only use a propriety crimping tool.



The DC system must comply with ET101:2008

All DC cables must be double insulated

DC cables must be SWA where mechanical protection is required

For long runs of DC cables an earthed metal trunking system must be used

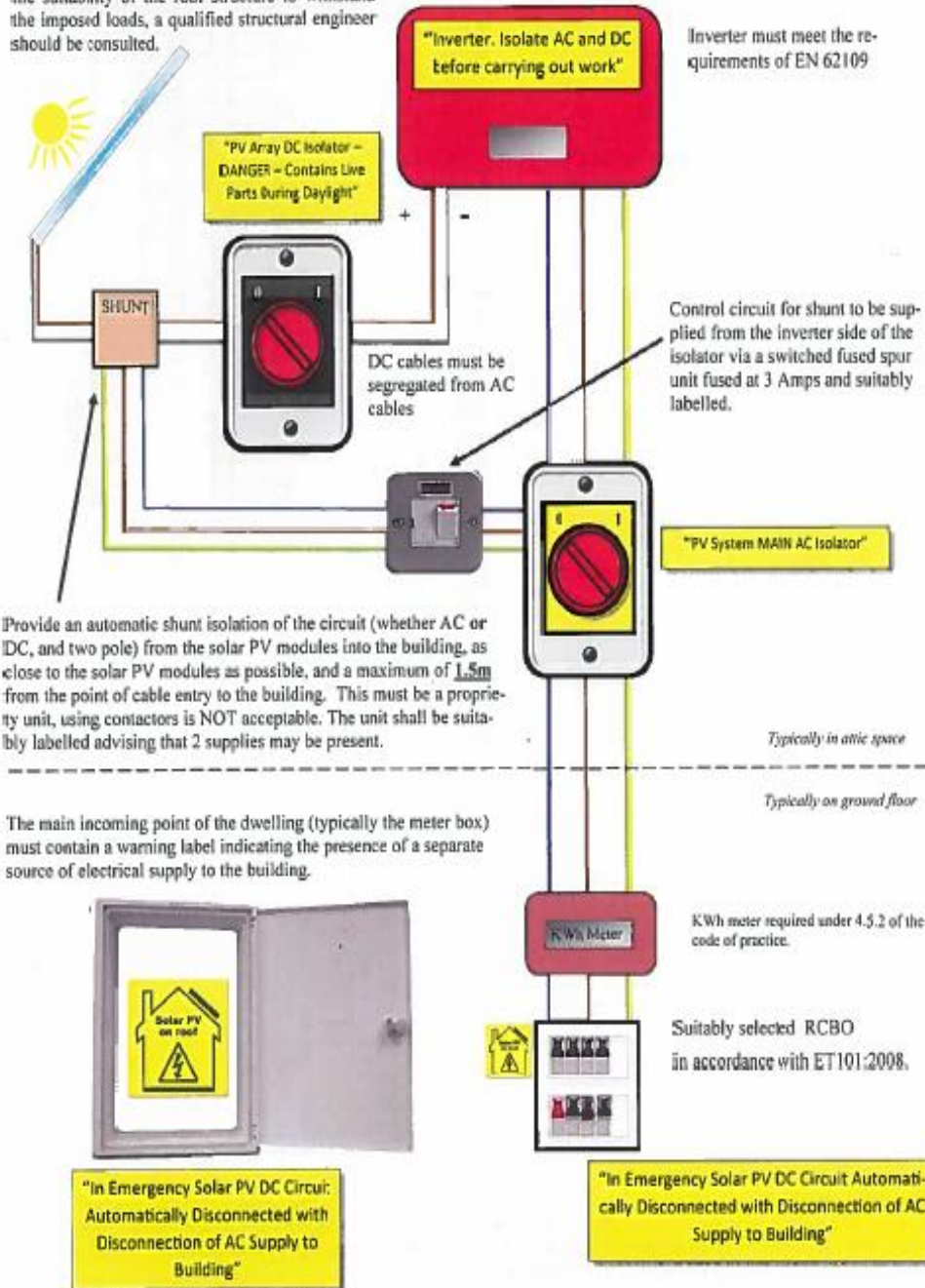
Tip. Consideration must be given to the UV resistance of all cables and cable fixings installed outside or in a location that may be subject to UV exposure. Cables should also be installed to minimise the risk from damage wind, rain, snow etc.

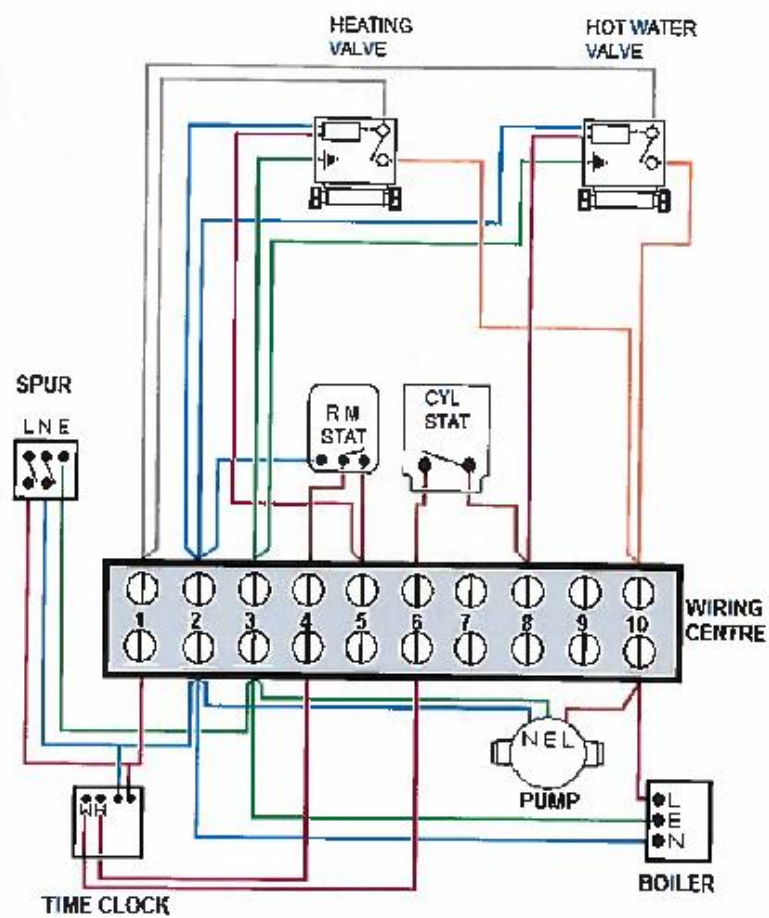
Further information can be found in ET101 2008 section 712

Typical Domestic Photovoltaic Arrangement

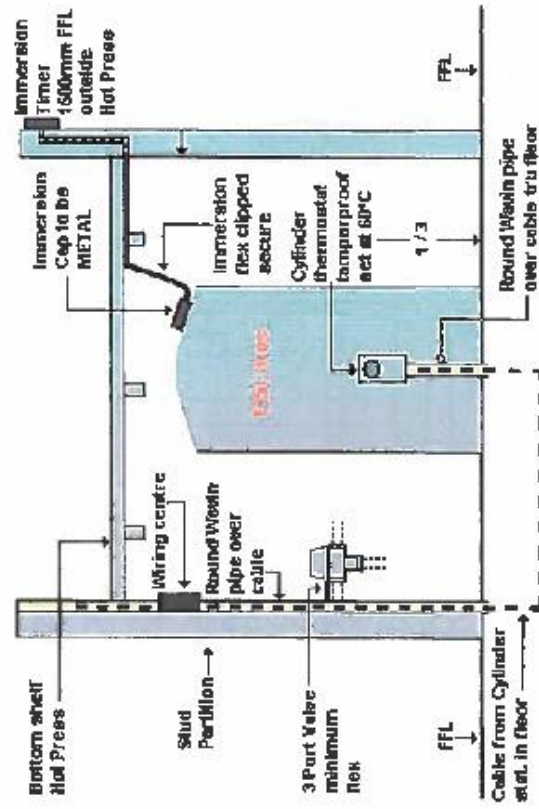
Based on SEAI 2018 code of practice requirements for domestic installations

Roof panels must be mounted and fixed according to 4.3 of the code of practice and to manufacturer's instructions. Where there is any doubt to the suitability of the roof structure to withstand the imposed loads, a qualified structural engineer should be consulted.





SCHEMATIC WIRING DIAGRAM S PLAN



HOT PRESS DETAIL

Hot Press Detail

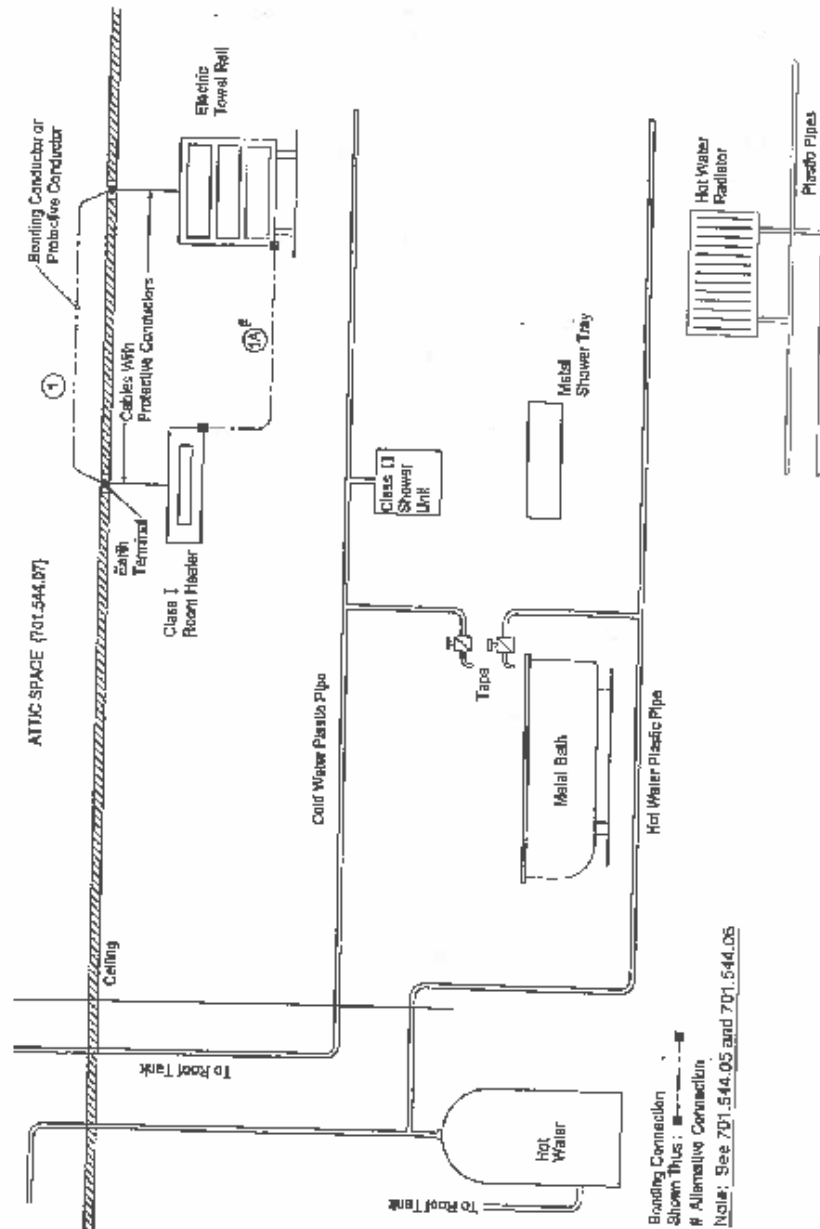


FIGURE 7b: BATHROOM EQUIPOTENTIAL BONDING SYSTEM - ALL-PLASTIC PIPEWORK: SCHEMATIC DIAGRAM

NOTE:

**ALL WIRING TO BE CARRIED OUT TO CURRENT STANDARDS AND
REGULATIONS AS PER 5TH EDITION NSAI IS10101:2020**