



**Part 6 of BS7671, Periodic Inspection and Testing and SFG 20 Core Schedule: Distribution Boards Schedule** cover similar electrical tests and inspections. The purpose of this document is to compare the two inspection regimes and highlight any gaps.

16 Nov 2020

(EDIS is the Electrical Distribution Information System)

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### 1 BACKGROUND

SFG 20 Core Schedule: Distribution Boards Schedule Ref : 44-07, provides planned preventative maintenance tasks for Electrical Distribution Boards. It specifies an electrical inspections and testing regime.

**BS 7671:2018 Requirements** for Electrical Installations, IET Wiring **Regulations** provides a standard for electrical installations in the UK. Compliance with this standard should ensure that the responsible persons duties have been met. BS7671 covers electrical installations supplied at nominal voltages (Uo) up to and including 1000 volts AC or 1500 volts DC. Part 6 of BS7671, describes Periodic Inspection and Testing.

Part 6 of BS7671, Periodic Inspection and Testing. and SFG 20 Core Schedule: Distribution Boards Schedule cover similar tests and inspections. The purpose of this document is to compare the two inspection regimes.

### 2 COMPARISON

A cursory review of SFG 20 Distribution Boards Schedule could conclude that it is a lot less thorough than the BS7671 schedule of inspections. However, BS7671 section 652.2 states that "in the case of an installation under an effective management system for preventative maintenance in normal use, periodic inspection and testing may be replaced by an adequate regime of continuous monitoring and maintenance of the installation and all its constituent equipment." Section 652.2 clearly relates

to the PPM described in SGF relating to Distribution board schedules. Section 652.2 also requires that appropriate records should be kept.

The PPM provides a regime of continuous monitoring and therefore periodic inspection is not required.

The schedule of tasks in SGF 20 Distribution Board Schedule need be compared to the tests described in BS7671 Appendix 6 -Electrical Installation Condition Report (EICR) to ensure that the proposed approach in SGF20 is suitable

Inspection and testing item	BS7671 EICR tests and requirements	SGF 20 Distribution Board Schedule Tasks
<b>Distribution Board:</b>		
- Zs at the Distribution Board	Y	N
- I <sub>pf</sub>	Y	N
- RCD operating time	Y	N
<b>Each Circuit</b>		
- Circuit impedances	Y	N
- Ring continuity -Ring final (r <sub>1</sub> ,r <sub>n</sub> ,r <sub>2</sub> ) -Continuity (R1+R2 or R2)	Y	N
- Insulation resistance and test voltage	Y	N
- Circuit polarity	Y	N
- Circuit measured ZS	Y	Y
- RCD RCD test times RCD test button	Y Y	Y Y
AFDD test	Y	Y
<b>Other requirements</b>		
Appropriate records (Appendix 6 EICR)	Y	N
Visual inspections, heating damage, correct rating	Y	Y
Circuit charts	Y	Y

Observations and recommendations	Y	Requires reporting of an issue is found
Severity Coding for the observation	Y	N
Integrity/Thermal Check	N	Y

### 3 CONCLUSION

Primary purpose of both the SG20 Distribution Board PPM and BS7671 is electrical safety, SG 20 does provide a set of activities to complete an electrical risk assessment, in comparing SG20 Distribution Board PPM and BS7671, the following observations are noted:

1. Periodic Inspection and Testing: Section 652.2 in BS7671 allows for a suitable PPM in lieu of periodic inspection and testing.
2. Record keeping: SG20 does not specify the record keeping requirements, the obvious format to use is the format provided by BS7671 Appendix 6.
3. Observations and recommendations categorising – SG20 provides no guidance in categorising findings during the PPM process. To categorise the risk and criticality of any findings the approach described in BS7671 Appendix 6 Model forms for categorising Observations and Recommendations should be used.
4. Continuity tests: SG 20 is silent on continuity tests
5. Insulation resistance: SG20 is silent on any insulation resistance. BS7671 requires Insulation Resistance measurements and a record of the test voltage used.
6. Thermal Check: BS7671 does not specifically recommend thermographic testing. SG20 suggests thermal imaging/scanning as an effective way to carry out this check but other methods can be utilised.
7. Polarity – SG20 does not mention the need to check polarity of a circuit, this is specific risk for lighting circuits.
8. Circuit impedance (Zs):
  - a. SG29 requires annual testing of a random selection of the submain switchboards/distribution boards, final circuit distribution boards, socket outlet circuits with a minimum of two per circuit of which one should be the socket outlet. In a small building consisting of a general supply and distribution board and circuits, this strategy may be sufficient to achieve acceptable test coverage. For larger buildings, the approach is unlikely to provide the required test coverage of a 5 year period.
  - b. Selecting circuits at random is not ideal, as some circuits may never be selected, specifically if they are critical and the tenants do not agree to them being de-energised. Tested circuits need to be tracked through record keeping ensuring the selection covers all circuits within, at least, 5 year period.



### 4 SCHEDULE OF TESTS FROM APPENDIX 6 MODEL FORM

EDIS Number: 103671

#### SCHEDULE OF TEST RESULTS FOR THE INSTALLATION

TO BE COMPLETED ONLY IF THE DISTRIBUTION BOARD IS NOT CONNECTED DIRECTLY TO THE ORIGIN OF THE INSTALLATION				TEST INSTRUMENTS (SERIAL NUMBERS) USED					
Z <sub>s</sub> at DB	.2	Ω	Operating times of associated RCD (if any)	At I <sub>Δn</sub>	ms	Earth fault loop impedance	S12345ABCDE6789FGHIJ	RCD	V12345ABCDE6789FGHIJ
I <sub>pf</sub> at DB	0	kA		At 5I <sub>Δn</sub> (if applicable)	ms	Insulation resistance	T12345ABCDE6789FGHIJ	Other	W12345ABCDE6789FGHIJ
Distribution board designation:	DB 110/L&P DB					Continuity	U12345ABCDE6789FGHIJ	Other	X12345ABCDE6789FGHIJ
Correct Supply Polarity Confirmed:	-	Phase Sequence Confirmed:	-	Details of circuits and/or installed equipment vulnerable to damage when testing:				Next test date:	12/11/2025

Circuit number and phase	Circuit impedances (Ω)					Insulation Resistance Test Voltage (V)	Insulation resistance Record lower or lowest value		Polarity (✓)	Z <sub>s</sub> (Ω)	RCD			AFDD	Remarks	
	Ring final Continuity [ measured end to end ] (Ω)			Continuity [ at least one column to be completed ] (Ω)			Live/Live (MΩ)	Live/Earth (MΩ)			at I <sub>Δn</sub> (ms)	at 5I <sub>Δn</sub> (if applicable) (ms)	Test Button Operation (✓)			Manual AFDD test button operation (✓)
	r <sub>1</sub> (Line)	r <sub>n</sub> (Neutral)	r <sub>2</sub> (cpc)	R <sub>1</sub> +R <sub>2</sub>	R <sub>2</sub>											
1 L1	-	-	-	.1	-	500	>200	>300	✓	.3	-	-	-	✓	Measure Zs exceeds permitted value - C1 Circuit Location temperatures °C: 30.40 Load and temperatures notes: Temperature captured at DB and equipment	

## 5 SFG 20 Core Schedule: Distribution Boards Schedule

SCHEDULE TASKS					
Display Order	Item	FQ	Action	Notes	Skill Set
1	Residual Current Devices (RCD) - 3 Monthly	3M	Check operation via test button.	For installations designed after 31 December 2018 the frequency of RCD testing is 6monthly.  Responsibility for this check should be agreed with the client.	Electrical
2	Arc Fault Detection Devices (AFDD)	6M	Where arc fault detection devices (AFDD) are installed, those provided with a trip test button should be tested every six months by pressing the button.	Responsibility for this check should be agreed with the client.	Electrical
3	Distribution board case	12M	Check for physical and mechanical damage, touch up paintwork after removing signs of corrosion. Check that door can be securely closed.	If moisture present check source and report.	Electrical
4	Residual Current Devices (RCD) - 12	12M	The test is made on the load side of the RCD between the		Electrical
Display Order	Item	FQ	Action	Notes	Skill Set

			<p>phase conductor of the protected circuit and the associated cpc. The load should be disconnected during the test.</p> <p>For each of the tests, readings should be taken on both positive and negative half cycles and both recorded on the RCD test sheet:</p> <p>a) with a leakage current flowing equivalent to 50% of the rated tripping current of the RCD, the device should not open.</p> <p>b) with a leakage current flowing equivalent to 100% of the rated tripping current of the RCD, the device should open in less than 200ms.</p> <p>c) where the RCD incorporates an intentional time delay it should trip within a time range from 50% of the rated time delay plus 200ms to 100% of the rated time delay plus 200ms.</p> <p>d) with a leakage current flowing equivalent to 5 times of the rated tripping current of the RCD, the device should open in less than 40ms.</p>		
	Monthly				
5	General	12M	<ul style="list-style-type: none"> <li>• Locally isolate incoming electrical supply</li> <li>• Open cover panels/access doors</li> <li>• Check for signs of overheating, unusual odours and noises during operation</li> <li>• Remove any build-up of dirt and dust on insulating components</li> <li>• Clean equipment generally</li> <li>• After all tasks have been completed, securely refix cover panels/access doors.</li> </ul>		Electrical
6	Cable insulation	12M	Check condition and inspect for signs of overheating.	If possible, identify cause of overheating and report.	Electrical



7	Fuse carriers and MCB's	12M	<p>Check for damage.</p> <p>Check rating(s).</p> <p>Check free operation of MCB mechanisms.</p>	<p>Ensure fuses are not 'blown'. Any fuses that are blown should be replaced with correct rating as per schedule.</p>	Electrical
8	Circuit charts	12M	<p>Check for accuracy of descriptions.</p>		Electrical

Display Order	Item	FQ	Action	Notes	Skill Set
			Ensure labels are securely fixed to exterior of door.		
9	Cable terminations	12M	Check all phase, neutral and earth connections and termination.		Electrical
10	Conduit and cable gland terminations	12M	Check for tightness.		Electrical
11	Integrity/Thermal Check	12M	<p>An integrity/thermal check is to be carried out in the distribution board including, but not limited to the following: Phasing, Connections, Load, Terminations, Busbars and Linkages.</p> <p>Record any areas which show a temperature reading 20 degrees centigrade above the ambient and investigate.</p>	Industry practice suggests that thermal imaging/scanning is an effective way to carry out this check but other methods can be utilised.	Electrical
12	Earth fault loop impedance test	12M	<p>Frequency of testing varies with location. In certain circumstances there are statutory/local frequencies for testing:</p> <p>Origin of the installation, Submain switchboards/distribution boards, Final circuit distribution boards, Socket outlet circuits: Test random selection with a minimum of two per circuit of which one should be the socketoutlet which is electrically the most remote from the distribution board.</p> <p>Lighting circuits, Isolatingswitches/control devices for fixed appliances, Exposed conductive parts of fixed appliances.</p>		Electrical