

Annual Inspection Report 2023 'Lightning Protection'

To: Andrew Fitzgerald
Company: PM Electric
Building Usage: Commercial
Location: 101 Miller Street North Sydney
Inspected By: Michael Vassallo
Date: Friday 13th January 2023
Pages: 10, including this.

Test Instrument: 1. Megger- DET3TD - Earth & Ground Meter (SN.101620033)
2. Megger DET14C - Clamp Earth Tester (SN.101307634)

Certificate No: 1. 22.1037043
2. 22.1037040

Calibrated to: 1. 27/01/2023
2. 27/01/2023

Calibrated by: 1. TR Calibration
2. TR Calibration

Test Date: 13/01/2023

Type of Test: Lightning system inspection and earth resistance testing of lightning earth

Test Method: "Dead earth" - "Earth Clamp - Stake-less"

Weather: Fine

Testing Officer: Michael Vassallo

System Description:

Type:	Australian Standard – AS/NZS 1768 - 2007 - Lightning Protection System
Downconductor:	Structural Steel
Earthing:	Structural Earth
Location:	101 Miller Street North Sydney

Inspection Details:

Item	Description	Comments
1	Check structure being protected for changes that will affect the operation of the system	<p>Found changes that do not comply with Australian Standard – AS/NZS 1768 – 2007 that may affect the operation of the lightning protection system. Found:</p> <ol style="list-style-type: none"> 3 x Metal Hand Railings located on the main upper roof area near the roof access need to be bonded to the lightning protection system. 1 x Metal access ladder to the main upper roof area that needs to be bonded to the lightning protection system. 4 x TV Antenna / Satellite Dish located on the northern side of the main upper roof area need to be bonded to the lightning protection system. 2 x Antenna support poles located on the main upper roof that needs to be bonded to the lightning protection system. 1 x Antenna / Satellite located on the main upper roof area need to be bonded to the lightning protection system. 1 x Satellite Dish located on the main upper roof area needs to be bonded to the lightning protection system. Found 5 x open circuit bonds to the BMU track located on the lower roof area that need to be re-bonded to the lightning protection system. 1 x Metal access ladder and hand railings to the cooling tower located on the lower roof area that needs to be bonded to the lightning protection system. Found 5 x open circuit bonds on the 25mm x3mm aluminium tape located on the lower roof level 32 South area that need to be re-bonded to the lightning protection system. Found 5 x open circuit bonds on the 25mm x3mm aluminium tape located on the lower roof level 32 North area that need to be re-bonded to the lightning protection system <p>(Location and photos on page 4 -8)</p>

2	Check Air Terminations & final for signs of damage	<p>The Air Termination Network consists of the main ornamental roof structure, feature antenna mast including additional roof features such as BMU tracks are all bonded into the air termination network which are interconnected with 25 x 3mm aluminium tape.</p> <p>11. Found a number of fixing saddles holding the 25 x 3mm aluminium lightning protection tape in place missing on level 32 North and South.</p> <p>No other major damage located.</p>
3	Check continuity of air termination network.	<p>Continuity testing measured lightning protection system earth resistance between bonded roof sections and features in various locations, which gave readings between 0.05 - 3.75 ohms.</p> <p>Except the items mentioned in item one of this report.</p>
4	Check all bonding points in air terminal network.	All exposed roof metallic structures and roof sections have tested to be continuous all accessible structural bonding points have tested to be continuous.
5	Check warning labels	Warning label not required.
6	Check Down Conductor.	This system utilizes the buildings structural steel of dedicated columns as down conductors.
7	Measure Earth Resistance at Bonded Structural Earth Test Point.	<p>Located one (1) dedicated test point.</p> <p>Measured 1.12 ohms (B1 - Car sparking spot 62).</p> <p>Measured structural earth, earth resistance using the "Clamp - Stake-less" method and "Three pin 'fall of potential'". Tested in accordance with section No.4 of the Australian Standards - AS/NZS 1768 - 2007 Ω = Ohms</p>

Certification:

System Re-Certified - Tested in accordance with AS1768-2007, with the exception of the down conductor spacing that would be to AS1768 -1991. (The test results indicate that the lightning protection system is in serviceable condition and meets the minimum requirements outlined in AS1768-2007)	YES
Valid Until	13/01/2023
Signed	<i>M. W. Vucelja</i>

Annual Inspection Report

Summary

2023

‘Lightning Protection’

Air Termination:

The Air Termination Network consists of the main ornamental roof structure, feature antenna mast including additional roof features such as BMU tracks are all bonded into the air termination network which are interconnected with 25 x 3mm aluminium tape

Continuity Testing of System:

Continuity testing measured lightning protection system earth resistance between bonded roof sections and features in various locations, which gave readings between 0.05– 3.75 ohms.

Down Conductors:

The structural steel within the columns of the building are used as the systems down conductors.

Earth System:

Located one (1) dedicated test point - B1 – Car sparking spot 62.

Earth resistance tests provided a good reading that was below the maximum 10 ohm - collective requirements outlined in section No.4 of the Australian Standards - AS/NZS 1768 – 2007 - which gave readings of equal to or less than 1.12 ohms.

Comments & Recommendations:

System Re-Certified - Tested in accordance with AS1768-2007, with the exception of the down conductor spacing that would be to AS1768 -1991.

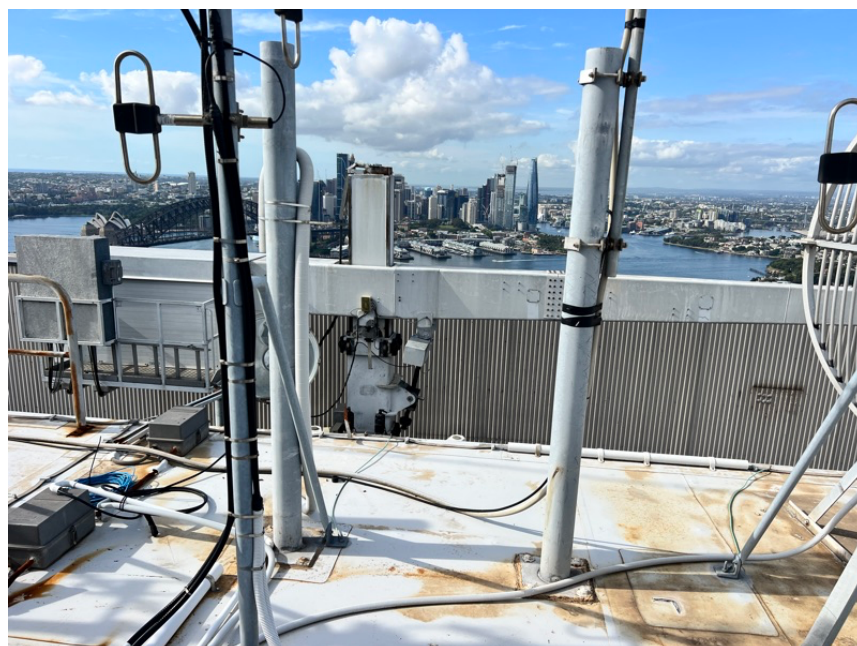
The system requires some remedial works to completely comply with Australian Standard 1768-2007. These repairs should be actioned as soon as possible and prior to the next inspection.

Changes that do not comply with Australian Standard – AS/NZS 1768-2007:

1. Bonded to the lightning protection – 3 x Metal Hand Railings located on the main upper roof area near the roof access that were found not bonded to the lightning protection system.
2. Bonded to the lightning protection – 1 x Metal access ladder to the main upper roof area that was found not bonded to the lightning protection system.

3. Bonded to the lightning protection – 4 x TV Antenna / Satellite Dish located on the northern side of the main upper roof area that were found not bonded to the lightning protection system.
4. Bonded to the lightning protection – 2 x Antenna support poles located on the main upper roof that were found not bonded to the lightning protection system.
5. Bonded to the lightning protection – 1 x Antenna / Satellite located on the main upper roof area that was found not bonded to the lightning protection system.
6. Bonded to the lightning protection – 1 x Satellite Dish located on the main upper roof area that was found not bonded to the lightning protection system.
7. Re-Bonded into the lightning protection in Five (5) locations – the open circuit bonds to the BMU track located on the lower roof area that were found not bonded to the lightning protection system.
8. Bonded to the lightning protection - 1 x Metal access ladder and hand railings to the cooling tower located on the lower roof area that needs to be bonded to the lightning protection system.
9. Re-Bonded into the lightning protection in Five (5) x open circuit bonds on the 25mm x3mm aluminium tape located on the lower roof level 32 South area that was found to have defective joining bonds to the lightning protection system.
10. Re-Bonded into the lightning protection in Five (5) x open circuit bonds on the 25mm x3mm aluminium tape located on the lower roof level 32 North area that was found to have defective joining bonds to the lightning protection system.
11. Replace a number of fixing saddles holding the 25 x 3mm aluminium lightning protection tape which were found missing on level 32 North and South lower roof areas.









The system should be inspected at 12 monthly intervals to ensure the system remains in operational condition and to check for structural change that may affect the lightning protection system.

If you have any questions regarding this report, please contact Terracon Industries.

Yours sincerely



Michael Vassallo