1 Power Busway Testing Procedure

1.1 Visually inspect each joint stack of the busway run for proper alignment. Verify that the joints meet the manufacturer’s requirement for alignment.

1.2 Establish the busway method of grounding

1.2.1 A separate ground bus bar is preferred in all new busways. There may be instances where the bus may use the case for the ground.

1.2.2 Existing systems that are being repaired or extended may have a ground bus bar or case ground

1.2.3 If the busway has a case ground perform the check listed below for the ground bus bar

1.3 Isolate each bus bar at both ends of the busway run including ground and neutral

1.3.1 Verify that there is complete separation of each phase, neutral and ground bus bar

1.4 Perform a continuity check for each phase, neutral and ground bus bar as follows:

1.4.1 Route an insulated wire from one end of the bus run to the other

1.4.2 Test each phase, neutral and ground bus bar one at a time and using the wire to complete the circuit

1.4.3 Check for continuity of each phase, neutral and ground bus bar

1.4.4 Verify no continuity to each of the following:

1.4.4.1 The remaining phase bus bars

1.4.4.2 The neutral bus bar

1.4.4.3 The ground bus bar

1.4.5 Example:

1.4.5.1 Secure the insulated test wire to Phase “A” at the end of the busway (opposite the test end)

1.4.5.2 Check for continuity on Phase “A” between the end of the same insulated wire and Phase “A” bus bar at the test end of the bus

1.4.5.3 Then verify no continuity between the end of the insulated wire and Phase “B”, Phase “C”, Neutral, and Ground bus bar

1.4.5.4 Note for busway with a ground bus bar:

Note: Ground bus continuity may be difficult to verify if the ground bus is effectively bonded to the case at each end or each joint and cannot be truly isolated.

1.5 After continuity has been verified for each phase, neutral and ground bus bar, terminate the ground bus at each end of the busway run. Make sure the ground bus bar is bonded to the equipment ground bus in the appropriate switchgear.

1.6 Verify continuity between the busway ground bus bar and the building system ground.

1.7 Verify continuity between the busway ground bus bar and the equipment ground bus in the appropriate switchgear.

1.8 Verify continuity between the busway ground bus bar if there is one and the busway case.

1.9 Perform a Megger test (insulation resistance test)

1.9.1 Between each phase and neutral bus bar to the ground bus terminal

1.9.2 Between each opposite phase

1.9.3 Perform Test at 1,000 VDC and record the readings

1.9.4 Example of Megger test:

• “A” Phase to – Ground
• “A” Phase to – Neutral
• “A” Phase to – Phase “B”
• “A” Phase to – Phase “C”
• Repeat for “B” and “C” phases

1.10 Reconnect each bus bar at both ends of the busway run including neutral.

1.11 Install all covers

2 Infrared Scan

2.1 At project substantial completion perform an infrared scan of the following equipment:

2.1.1 Switchboards

2.1.2 Panelboards

2.1.3 Motor Control Centers

2.1.4 Transformers

2.2 Remove panels so joints and connections are accessible.

2.3 Prepare test and inspection report. Include notation of deficiencies and remedial actions taken.
2.4 A second infrared scan should be provided 8-9 months after substantial completion. It should also have a report as described above.