

QA/QC Checklist

PENNSTATE



Construction Services

DIVISION 26 – Electrical

26 05 26 – Grounding & Bonding of Elec Systems

General Information	Programming/Design	Bidding/Preconstruction	Installation/Construction	Closeout/Warranty
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01 General

1. On new construction, the contractor shall provide a common bare copper main ground bus bar mounted to the wall adjacent to the service entrance equipment.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. The connection between the main switchgear/switchboard/panelboard and the ground bus shall be exothermically (cad) welded at the ground bus (not in the gear). If the ground wire is run inside a metallic conduit, the conduit must also be grounded (at BOTH ends). The conduit shall be grounded using the same size conductor as the main ground wire and may be clamped to the conduit and bolted to the ground bus. All other connections at the ground bus shall be bolt-on.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Each connection to the ground bus shall be identified with an engraved nameplate or other identifier. Separate bolt-on grounding connections shall be provided for: <ul style="list-style-type: none"> • Water service • Buried ground rods • Building steel • Telecom ground bus(es) • Lightning protection system (if provided) • Step-down transformer(s) within the main electrical room (if provided) 	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Verify that any ground connections made below grade are cad welded.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Buried ground rods shall have a minimum 3-rod bed, spaced at least a rod length apart (normally 10'), and buried at least 12" below grade. If possible, maintain a minimum of 25' from a transformer.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Building steel ground connections shall be cad welded to the steel.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Each telecom equipment room shall have a separate ground bus connected via a 4/0 ground wire to the ground bus at the main ground bus.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Service transformers and service panels shall not have a grounding conductor between them. The wire serves no purpose and OPP removes them.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

02 Testing

1. The building ground ring shall be tested before backfilling. Testing shall be completed using the “fall of potential” method and shall conform to NETA standards. The fall of potential test consists of three connection points; one at the electrode being tested and the other two are probes (one current and one potential) placed in the soil by the tester. The ground resistance relative to the	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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<p>earth shall be below the minimum levels listed on the OPP Design and Construction Standards webpage under item 26 05 26.01E of the Grounding and Bonding of Electrical Systems section.</p>					
<p>2. Verify that point-to-point tests are performed to determine the resistance between the main grounding system and all other major electrical equipment frames, system neutral, and derived neutrals points. Resistance shall not exceed 0.5 ohms. Tests shall conform to NETA standards.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>3. A copy of the test reports shall be submitted to Engineering Services.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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