

**Document Name:**

- Contractor Quality Control Plan for Electrical Equipment Installation
- Inspection and Test Plan for Electrical Equipment Installation

No.	Item description	Responsibility		
		CC	TPI	Owner
<b>6.</b>	<b>Electrical</b>			
<b>6.1</b>	<b>Installatin of equipment</b>			
6.1.1	Pre-installatino check 1) Foundation and setting bolts - Dimension - Visual check 2) Visuals check 3) Identification marking	H		
6.1.2	Installation and assembling 1) Location 2) Orientation 3) Assembling layout and arrangement 4) Leveling and grouting 5) Inter-panel grounding 6) tightness of connection and fastening 7) Visual check	H		
<b>6.2</b>	<b>Transformers</b>			
6.2.1	Nameplate rating	H		
6.2.2	Area classification	H		
6.2.3	Bushing seals	H		
6.2.4	Oil leaks and level	H		
6.2.5	Cables and connection	H		
6.2.6	Terminal boxes	H		
6.2.7	Pressure relief device	H		
6.2.8	Tap setting	H		
6.2.9	Bolting, clamping, etc.	H		
6.2.10	Equipment grounding connectin	H		
6.2.11	Insulation resistance test	H		
6.2.12	Dielectric strength test for oil and winding	H		
<b>6.3</b>	<b>High voltage and low voltage sitchgears, low voltage motor control centers and low voltage combination motor starters</b>			
6.3.1	Name plate rating	H		

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6.3.2	Board assembly, bolting and leveling	H		
6.3.3	Bus-bar connections and supports, control bus-bars, neutral bar and connections	H		
6.3.4	Grounding bars and connections inside board	H		
6.3.5	Capacity and rating of fuses in use	H		
6.3.6	Contact and rating of fuses in use	H		
6.3.7	Contact alignments of draw-out mechanism	H		
6.3.8	Cable ends, glands, clamping and termination	H		
6.3.9	Test of anti-condensation heater	H		
6.3.10	Testing under rated voltage	H		
6.3.11	Circuit numbering	H		
6.3.12	Testing 1) Relays 2) Measuring 3) Current transformers rating and capacity 4) Voltage transformers rating and capacity	H		
6.3.13	Testing indicating and signaling lamps or devices	H		
6.3.14	Insulation resistance	H		
6.3.15	Interlocks and control test	H		
6.3.16	Final setting of relays	H		
6.3.17	Sequence test	H		
6.3.18	Phase rotation check and polarity test of electrical distribution system	H		
6.3.19	Megger test	H		
<b>6.4</b>	<b>Motors</b>			
6.4.1	Name plate rating	H		
6.4.2	Area classification	H		
6.4.3	Removing shaft blocking device for transportation	H		
6.4.4	End play of rotor and coupling	H		
6.4.5	Free rotation by hand	H		
6.4.6	Bearings and lubrication 1) Bearings 2) Grade and quality of grease 3) Grease packing	H		
	4) Oil level and oil rings	H		

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	5) Leakage			
6.4.7	Connection 1) Bolting and waterproofing of connection box 2) Terminal connection	H		
6.4.8	Cable ends and glands	H		
6.4.9	Equipment grounding connection	H		
6.4.10	Components of cooling systems	H		
6.4.11	Insulation resistance test	H		
6.4.12	Rotating direction	H		
6.4.13	Non-load running test 1) Uncoupled run test 2) Temperature rising at bearing	H		
6.4.14	Alignment after nonload test 1) Coupling alignment 2) End play	H		
6.4.15	Function test of push button station	H		
6.4.16	Starting seconds with coupled unit, pump, mixer, and others	H		
6.4.17	Megger test	H		
<b>6.5</b>	<b>Installation of underground cables</b>			
6.5.1	Earth wall cable trenches 1) Pre-installation check 2) arness on cable trenches 3) Identification marking 4) Cable arrangement and order 5) Clearance between cables 6) Spacing of cables serving as two supply feeds 7) Burring depth 8) Horizontal minimum clearance between piping 9) Visual check	H		
6.5.2	Concrete wall cable trenches 1) Pre-installation check			

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	2) Identification mark 3) Clearness on cable trenches 4) Cable arrangement and order 5) Clearance between cables 6) Back filling 7) Visual check	H		
6.5.3	Under ground conduit system 1) Pre-installation check 2) Identification marking 3) Visual check (Clearance and depth)	H		
6.5.4	Megger test	H		
6.5.5	Hi-pot test (if required)	H		
<b>6.6</b>	<b>Installation of aboveground cables</b>			
6.6.1	Pre-installation check	H		
6.6.2	Conduit/cable tray routing	H		
6.6.3	Conduit/cable tray installation/assembly	H		
6.6.4	Conduit/cable supporting	H		
6.6.5	Clearness on conduits/ cable tray	H		
6.6.6	Conduit sealing	H		
6.6.7	Cable / tray supports	H		
6.6.8	Tightness of connection and fastening	H		
6.6.9	Visual check	H		
<b>6.7</b>	<b>Grounding system</b>			
6.7.1	Pre-installations check	H		
6.7.2	Identification marking	H		
6.7.3	Installation of grounding point	H		
6.7.4	Grounding conductors	H		
6.7.5	Size and installation	H		
6.7.6	Bonding and grounding connection	H		
6.7.7	Grounding resistance	H		
6.7.8	Protective measures against mechanical damage	H		
6.7.9	Visual check	H		
<b>6.8</b>	<b>Cables (Low voltage and high voltage cables)</b>			
6.8.1	Clearness on cable ducts and/or cable racks	H		
6.8.2	Size and installation against drawings	H		

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6.8.3	Circuit indication and terminal numbering	H		
6.8.4	Cable tag numbers	H		
6.8.5	Cable ends and glands	H		
6.8.6	Cable route markers	H		
6.8.7	Seal of cable ends	H		
6.8.8	Clamps and connections of single conductor cables	H		
6.8.9	Cable protection and connections	H		
6.8.10	Cable protection against mechanical damage	H		
6.8.11	Hi-pot test (above 600 V cables)	H		
6.8.12	Insulation resistance test	H		
6.8.13	Grounding connections	H		
6.8.14	Visual check	H		
<b>6.9</b>	<b>Lighting</b>			
6.9.1	Enclosure and area classification	H		
6.9.2	Installation with approved drawing	H		
6.9.3	Circuit numbering of lighting panel board, loading and switching rating	H		
6.9.4	Cable grand	H		
6.9.5	Feeder cable size	H		
6.9.6	Equipment grounding	H		
6.9.7	Operation and setting of photo-electric cells, magneTPI control switches and others	H		
6.9.8	Insulation resistance test of each circuit	H		
6.9.9	Illumination level	H		
6.9.10	Lighting circuit test	H		
6.9.11	Visual check	H		
<b>6.10</b>	<b>Capacitors</b>			
6.10.1	Name plate capacity, voltage and frequency	H		
6.10.2	Insulation resistance	H		
6.10.3	Visual check	H		
<b>6.11</b>	<b>Batteries and battery chargers</b>			
6.11.1	Name plate rating & battery rating, voltage & ampere-hours	H		
6.11.2	Connecting load	H		

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6.11.3	Liquid level of each cell	H		
6.11.4	Battery charger, protective mechanisms such as fuses, relays and others	H		
6.11.5	Tightness and correct connection	H		
6.11.6	Equipment grounding	H		
6.11.7	Batteries and battery charger test	H		
6.11.8	Visual check	H		
<b>6.12</b>	<b>Cathodic protection</b>			
6.12.1	Visual check	H		
6.12.2	Insulation	H		
6.12.3	Test	H		
<b>6.13</b>	<b>Electrical heat tracing</b>			
6.13.1	Identification tag check	H		
6.13.2	Type and installation	H		
6.13.3	Insulation test	H		
6.13.4	Visual check	H		
<b>6.14</b>	<b>Communication system</b>			
6.14.1	Alarm facilities	H		
6.14.2	Function test	H		

**CC:** Construction Contractor

**TPI:** Third Party Inspection

**H: Hold Point;** Hold on the production till TPI Inspector performs inspection and supervise the required test

If you want to use this draft for inspection and test plan you need to fill the TPI and Owner Column based your project requirement. You may use following abbreviation for filling the columns:

**W: Witness Point;** Manufacture shall notify client and TPI Inspector but there is no hold on the Construction;

**R: Document Review;** Review means Review document, which includes of material test certificates, test reports, records and etc.

**A: Approval**

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**SW: Spot Witness;** for items with spot witness contractor shall notify TPI inspector as fulfilling the monitoring;