Issue- Validation List

Electrical Issues

S. No.	Electrical Component	Installation Type (New/ Old)	Issue Detail	Action	Validating Authority
1	**Wiring and Cables**	**Old**	Few issues listed below that may arise with old wiring system: ~ Overheating issues in wiring. ~ Damaged wiring in electrical systems. ~ Safety clearance not adequate. ~ Inappropriate insulation provided in wiring. ~ Missing overcurrent protection devices for electrical systems. ~ Single line diagrams unavailable. ~ Overloading of circuits . ~ Unauthorised/ Unapproved alterations done in the electrical systems or it's supplies. ~ For wiring types such as: Non- Flexible cables, paper insulated cables, busbars and busbar connections, cables for low voltage, AC circuits cables and there conduits systems and fittings are not as per standards. ~ Details for current conducting capacity of cable are not available. ~ Joints are not mechanically and electrically sound. ~ Inadequate fire rated wire used, or Certification for fire rating not available.	Factory shall get the systems verified by a Chartered/ Registered Electrical Engineer, Electrical Inspectorate of State/ Local Electrical Authority or by a 3rd party Government Certified Firm for safe installation and working capacity.	~ Chartered/ Registered Electrical Engineer ~ Electrical Inspectorate (State/ Local Electrical Authority) ~ 3rd party Government Certified Firm
		New	Few issues listed below that may arise with new wiring system: ~ missing appropriate approvals and authorisations from certified Chartered/ Registered Engineer or State Electrical Authority. ~ Single Line diagrams are not available. ~ Alterations done in the electrical systems. ~ Joints are not mechanically and electrically sound. ~ Inadequate fire rated wire used, or Certification for fire rating not available. ~ Safety clearance not adequate. ~ Details for current conducting capacity of cable are not available. ~ Overloading of circuits. ~ Inappropriate insulation provided in wiring.	Factory shall get the systems verified by a Chartered/ Registered Electrical Engineer, Electrical Inspectorate of State/ Local Electrical Authority or by a 3rd party Government Certified Firm for safe installation and working capacity.	~ Chartered/ Registered Electrical Engineer ~ Electrical Inspectorate (State/ Local Electrical Authority) ~ 3rd party Government Certified Firm
2	**Single Line Diagrams/ Plans/ Drawings**	**~**	Few Issues related to missing Single line diagrams/ Drawings/ Plans for Electrical Systems (HV & LV distribution systems, power supply, Earthing Layout etc) are as below: ~ Drawings and plans are not available for the new/ old electrical systems and installations. ~ Power supply schematics not available. ~ Voltage and current ratings not mentioned on drawings. ~ Discrepancy between actual systems and the drawings provided. ~Signature of Chartered/ Registered Electrical Engineer and approval stamp from State Electrical Authority is not available .	Factory shall get the Single line diagrams/ plans/ Drawings made as per the actual electrical installations and same shall be certified by a Chartered/ Registered Engineer along with Electrical Inspectorate (State/ Local Electrical Authority). To achieve this, factory can hire a 3rd party Government Certified Firm with Chartered/ Registered Engineer to ensure the plans/ drawings made satisfy the requirements of safety and compliance.	~ 3rd party Government Certified Firm with Chartered/ Registered Engineer ~ Electrical Inspectorate (State/ Local Electrical Authority
3	**Earthing**	**~**	Few issues listed below that may be arise with Earthing: ~ Earthing not available for all machineries. ~ Test reports of periodical inspection of earthing is not available. ~ Depth of Earthing found to be inadequate as per the records. ~ Earthing Schematics not available. ~ Earth Leakage protection not available for Engineering Services (gas and water pipes, HVAC duct works, tanks, structural steel parts etc.)	Factory shall get the Earthing done for required places by a Government Certified/ Registered 3rd party Electrical contractor and shall also get the periodical inspections test reports by the electrical contractor to ensure the following: ~ Earthing systems are intact and are in good working condition for all required places ~ There is no corrosion of Earth conductors ~ Earthing systems have been laid out as per the norms at adequate depth ~ Adequate coordination between practically obtainable value of earth resistance and setting of protective relays	~ 3rd party Government Certified/ Registered Electrical Contractor
4	**Lightning Protection Systems**	**Old**	Few issues listed below that may arise in old LPS: ~ unavailability of testing records. ~ unavailability of certifications.	~ Factory to acquire the certification by Product Manufacturer. ~ For test records, factory to get it tested and gather the test results from a 3rd party Government recognised Electrical contractor	~ 3rd party Government Certified/ Registered Electrical Contractor ~ Product Manufacturer
		New	Certifications not available.		
5	**Boiler**	**~**	~ Issues related to unavailable records on capacity, details of boilers, certification and license.	Factory to acquire the certification from the Product Manufacturer and shall approach the Boiler Inspectorate (State/ Local Electrical Authority) for relevant permits and approvals	~ Product Manufacturer ~ Boiler Inspectorate (State/ Local Electrical Authority)
6	**Substations**	**(Both)**	Issues related to unavailability of approvals, capacity and certifications.	Factory to acquire the certification from the manufacturer and shall have the approvals for installing substations by Electrical Inspectorate of State/ Local Electrical Authority. Any alterations in the substation system shall be pre- approved by the Electrical Inspectorate. Such approval is mandatory before energizing the substation. It is desirable to get the approval for the general layout, schematic layout, protection plan, etc, before the start of the work from the Inspectorate. All substation equipment and accessories and materials, etc, shall conform to relevant Indian Standards, wherever they exist, otherwise the consumer (or his consultant) shall specify the standards to which the equipment to be supplied confirms and that shall be approved by the authority. Manufacturers of equipment have to furnish certificate of conformity as well as type test certificates for record, in addition to specified test certificates for acceptance tests and installation related tests for earthing, earth continuity, load tests and tests for performance of protective gear.	~ Electrical Inspectorate- State/ Local Electrical Authority
7	**Diesel Generator**	**(Both)**	Issues related to missing documentation, approvals from (CPCB) Central Pollution Control Board, Certification and plans for compartmentation for fire protection is not available, noise levels exceeding the limit, height of DG exhaust pipe is incorrect, Electrical connections not appropriate, certifications from manufacturer not available etc.	Factory to acquire the certification from the manufacturer and shall have the approvals for installing diesel generators by Electrical Inspectorate of State/ Local Electrical Authority. The voltage above which inspection and testing of electrical installations including installations of supplier or consumer shall be carried out by the Electrical Inspector shall be notified by the Appropriate Government.	~ Product Manufacturer ~ Electrical Inspectorate- State/ Local Electrical Authority
8	**HVAC Systems**	**~**	Issues may arise due to changes in HVAC Systems, Chiller plants and pumps, ducts, grills and other air conveyance systems, smoke extraction systems, performance parameters etc.	Factory to get the certifications from the manufacturer and shall also acquire approved plans for HVAC Systems from CPWD (Central Public Works Department) or Local Government Electrical/ Fire Authority adhering to actual construction.	~ CPWD/ Local Government Electrical/ Fire authority
9	**Maintenance records/ Test reports**	**~**	Issues related to unavailability of maintenance records for the for the various electrical systems. ~ Generator(s) annual maintenance records. ~ Transformer(s) annual maintenance records. ~ High voltage switchgear annual maintenance records. ~ Low voltage switchgear annual maintenance records. ~ Lightning protection system annual Assessment records. ~ Previous thermographic Assessment reports. ~ Earthing System annual Assessment records. ~ Overhead lines annual inspection records. ~ Boiler annual maintenance test records. ~ Thermographic survey records.	Factory to engage with a 3rd party Government Certified/ Registered Electrical Contractor to get the test done and acquire the reports for future maintenance purpose.	~ 3rd party Government Certified/ Registered Electrical Contractor
10	**Lifts**	**(Both)**	Issues related to lift that may arise are as below: ~ Lift Licence/ certificate/ Plans & authorizations is not available in the factory. ~ For a newly installed lift, valid license is not available. ~ License of the lift is expired and up for renewal. ~ Plans and authorizations are not available.	Factory to get acquire the license from the lift manufacturer and shall also acquire the approval from Chief Electrical Inspector Department of Registered Government Local Body for a newly installed lift and for renewal of license, factory to contact the Product Manufacturer for periodic inspection and renewal of License.	~ Chief Electrical Inspector Department of registered Local Government Body ~ Product Manufacturer

Issue- Validation List

Structural Issues

S. No.	Structural member	Issue Details	Action	Validating Authority
1	**Ground condition**	Geotechnical report not available to verify the soil load bearing capacity and soil type.	Factory to get the test done from a Registered/ Accredited Lab to acquire the certified Geotechnical report highlighting the type of soil and it's load bearing capacity. Geotechnical report covers Geotechnical design (principles) of building foundations, such as shallow foundations, like, continuous strip footings, combined footings, raft foundations, deep foundations like pile foundations and other foundation systems to ensure safety and serviceability without exceeding the permissible stresses of the materials of foundations and the bearing capacity of the supporting soil/rock.	To be carried out by a Geotechnical Engineer with 3 years of Design and Soil investigation experience and shall be registered with Institute of Engineers and shall have a valid degree and a practicing license from a recognised university. Or the same can be done by a Private Soil Investigation Company that is Authorized/ Registered to carry out such tests.
2	**Walls (Cracking/ deflection/ deformation)**	Cracking/ deflection/ deformation of any structural or non structural wall member. Few issues that falls under this category are listed as below: ~ Serious cracks developed in wall. ~ Deflection due to excessive loads. ~ Deformation of walls due to stress/ excessive loads. ~ Major Dampness resulting in degradation, etc.	Factory to get it checked by Govt. Registered/ Chartered Structural Engineer to ensure safety.	~ Government Registered/ Chartered Structural Engineer (The Engineer shall be registered with the Local Government Body and shall be authorised to certify the structure.)
3	**Beam/ Columns (Excessive loads)**	Issue of excess load causing stress on the structural members and structural joints may occur due to following reasons: - Excess storage. - Water tanks. - Mezzanines. - Unauthorized building extensions. - Change in use of particular area/ floor in the building.	Design and loading status to be checked by Government Registered/ Chartered Structural Engineer to ensure safety.	~ Government Registered/ Chartered Structural Engineer (The Engineer shall be registered with the Local Government Body and shall be authorised to certify the structure.)
4	**Building**	Additions/ Alterations in building will relate to following issues: - Any additional construction in building. - Alteration in used of the building floor/ area (For ex- altering the use of particular floor from stitching to washing resulting in increase in loads). - Approval permits and/or authorised plans not available for review.	Factory needs to submit the plan for additions/ alterations made to the relevant Development Authority/ Local authority (Department of Construction) and shall get the approval on as built drawings along with the signature and stamp of Authorized Government Civil Engineer	~ Authorised Government Civil Engineer ~ Development authority/ Local Authority (Department of construction)
5	**Floor/ Particular area (Load plans)**	Load plans not available in the factory and is required in following cases: ~ Storage racks and storage areas ~ Heavy machineries installed on floors ~ Mezzanines ~ Floor with storage racks and storage areas etc.	Factory to approach Authorized 3rd party Structural Engineer who shall be registered with the Local Government Body to get the load plan prepared and certified to ensure safety.	~ Authorized 3rd party Structural Engineer (The Engineer shall be registered with the Local Government Body and shall be authorised to certify the structure.)
6	**Layouts/ Plans/ Drawings (Updated Structural drawings/ As built drawings/ Building plans not available)**	Following cases listed below are few examples on issues related to drawings and building plans that may arise in the factory: - Factory does not have Structural drawings. - Factory does not have building plans available. - As built drawings are not updated as per the actual construction. - Drawings/ Plans/ Layouts are missing approval and stamp from Local Development Authority or are not signed and approved by the Government Engineer.	For missing plans and drawings, factory to acquire the duplicate plans and drawings from the Local Government Body where the plans have been initially submitted. For any new changes or updates, factory will have to submit the updated plans and layouts to Local Government Body such as CPWD, DOC etc. to have the same approved and signed by the Chartered/ Registered Civil Engineer.	~ Chartered/ Registered Civil Engineer- CPWD

Issue- Validation List					
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S. No.	**Component**	**Installation Type (New/ Old)**	**Issue Details**	**Action**	**Validating Authority**
1	**Fall ceiling panels**	**(Both)**	~ Fire rating certification is not available for Fall ceiling panels ~ Fire rated material details are not available. ~ Approved design reference number is not available.	~ Factory to acquire the certification, material details and approved design reference number from the Product Manufacturer ~ Factory to have the material tested and certified by a Government registered/ Accredited Lab to ensure the fire rating of ceiling panels and it's design standards	~ Product Manufacturer ~ Government Registered/ Accredited Lab
2	**Smoke Detectors/ Sprinklers**	**(Both)**	Few issues listed below that may arise with old smoke detectors: ~ Relevant certification is not available. ~ Layouts are not available. ~ Specifications of smoke detectors/ sprinklers is not available. ~ Systems are not marked and updated on the fire NOC and are not approved.	~ Factory to acquire the certifications and specifications document from the Product Manufacturer. ~ For the Fire safety systems layout factory can contact a 3rd party Government Certified/ Registered Contractor. ~ Factory can acquire the required approval and authorizations post assessment by the Registered/ Chartered Engineer of Local Fire Authority.	~ Product Manufacturer ~ 3rd party Government certified Contractor ~ Local Fire Authority
3	**Fire Rating (Doors/ Walls)**	**(Both)**	Few issues listed below related to Fire rated (Doors/ Walls): ~ Fire rating certification is not available ~ Quality of fire rated door is not as per the standards ~ Any modification done in the door ~ Fire rated material details are not available. ~ Approved design reference number is not available. ~ Separation wall details related to thickness, cross- sectional view and framing details are not available ~ Relevant plans are not available.	~ Factory to acquire the certification, material details and approved design reference number from the Product Manufacturer ~ In case of any modification, factory to have the material tested and certified by a Government registered/ Accredited Lab ~ Factory to gather the separation wall details related to thickness, cross- sectional view and framing details from the product manufacturer.	~ Product Manufacturer
4	**Jockey Pump/ Stand by Pump**	**(Both)**	No operational certificate available to ensure efficiency and pressure of the pump.	Factory to acquire the certification from the Product Manufacturer.	~ Product Manufacturer
5	**Floor Plans- Fire Fighting systems (Smoke detectors, Sprinklers, Hydrants, Fire Hose, Extinguishers, Fire alarms etc.)**	**(Both)**	Following cases listed below are few examples on issues related to floor plans for fire fighting systems: - Factory does not have the floor plans highlighting the fire fighting systems. - As built drawings are not updated as per the actual installations. - Drawings/ Plans/ Layouts are missing approval and stamp from local authority or are not signed and approved by the Government Engineer.	For missing floor plans, factory to acquire the duplicate plans from the Local Fire Authority where the plans have been initially submitted. To develop new set of as built drawings highlighting the updated fire fighting systems, factory to contact a 3rd party Government Certified/ Registered Contractor. For any new changes or updates, factory will have to submit the updated plans and layouts to Local Fire Authority to have the same approved and signed by the Registered/ Chartered Engineer.	~ 3rd party Government certified Contractor ~ Local Fire Authority
6	**Compartmentation**	**(Both)**	Few issues listed below that may arise with compartmentation: ~ No plans and approvals present with factory for compartmentation. ~ Certifications for fire barriers used for compartmentation is not available.	Factory to acquire the certification from the Product Manufacturer and for any new changes or updates, factory needs to submit the updated plans and layouts to Local Fire Authority for approvals. (Any changes to be done shall have the pre- approval by the Local Fire Authority)	~ Product Manufacturer ~ Local Fire Authority
7	**Unauthorized changes in Evacuation routes (Such as Stairways, walkways etc.)**	**(Both)**	Few issues listed below that may arise due to unauthorized changes in Evacuation routes : ~ No plans and authorizations available with the factory. ~ Changes are not as per the occupants load in the factory. ~ Compartmentation/ Fire rated (doors/ walls) in evacuation routes not available or not certified.	Factory to acquire the certification for Compartmentation/ Fire Rated (Doors/ Walls) from the Product Manufacturer and for any new changes or updates, factory needs to submit the updated plans and layouts to Local Fire Authority for approvals. (Any changes to be done shall have the pre- approval by the Local Fire Authority)	~ Product Manufacturer ~ Local Fire Authority