

Electrical Installation Handover Checklist

For Oxygen Plant Installations

Date Published: 15 July 2025

This document was developed by [Build Health International](https://www.bhioxygen.org) to support global medical oxygen infrastructure planning, site preparation, operation, maintenance, and sustainability. Additional technical resources are available at www.bhioxygen.org.

This document is designed to guide the verification process that ensures that the electrical installations for oxygen plants are completed, verified, and documented before handover to the client or end-user. This checklist aims to confirm that the installation complies with relevant standards, design, and specifications; is safe to operate; and meets the project's requirements.

Please Note: The information contained herein provides generalized, high-level guidance. It is intended to be used concurrently with, and shall not supersede, the approved project design documents, technical specifications, and all applicable local codes and regulatory standards.

1. Visual Inspection

- Verify and confirm that the installation aligns with the design drawings and specifications (including cable sizes, breakers, panels, etc.).
- Check and confirm that there is no visible damage to cables, trays, electrical equipment, and other components that may have occurred during transportation and/or installation.
- Check and confirm that all enclosures (e.g., consumer units, junction boxes, etc.) are securely mounted and properly sealed (especially the outdoor equipment—IP54 as per specifications).
- Verify that all circuits, protective devices, and other components are correctly labelled. Distribution boards should have circuit schedules printed on-site. These schedules should have been inspected at the factory and shipped together with the panels.
- Check that distribution boards, switches, and outlets are easily accessible for operation and maintenance.
- Ensure that cables are correctly installed, avoiding mechanical stress and damage. Verify that the cable type and size used on-site match the specifications outlined in the design drawings.
- Check for sealing of cables upon entry/exit of structures.

2. Earthing and Bonding

- Confirm that the earthing system is correctly installed, with the proper cable size and a secure connection at the earthing terminal. Measure the earth electrode resistance and record the results.
- Check that circuit protective conductors (CPCs) and bonding conductors are continuous throughout the installation.

3. Electrical Tests done and results recorded (where applicable), as below:

- Continuity of circuit protective conductors (CPCs).
- Insulation resistance between live conductors, live-to-earth, and neutral-to-earth.
- Check the correct polarity at all sockets, switches, and lighting points.
- Record external impedance (Z_e) and circuit impedance (Z_s).

- Check the prospective fault current to confirm that the protective devices (e.g., MCCBs) have a breaking capacity sufficient to handle the fault current and that it is within the breaking capacity of these devices.
- Verify that the phase rotation is correct for PSA operation (this will require attempting to start the plant).
- Test the functionality of all switches, sockets, circuit breakers, lights, and other electrical components.
- Test the operation of the ATS to ensure the load is successfully transferred from utility to the Generator and vice versa wherever applicable

4. Handover Documentation (hard and soft copies)

- The Electrical Installation Certificate (EIC), country specific, must be completed and signed by the contractor. They must be licensed by the country specific regulatory authority.
- The contractor has shared test results for documentation purposes.
- As-built single-line diagrams, site plans, panel drawings, etc., reflecting the final installation.
- Operation and maintenance manuals and warranties (for the ATS, generator, capacitor bank, AVR, etc.)
- User training is to be conducted by the contractor. It is beneficial to perform a walkthrough with hospital staff to ensure a clear understanding of the electrical system. Signed copies of the training exercise are recommended.

5. Additional Checks – After PSA is operational

- The contractor should check and confirm that the installation can handle the connected loads.
- The contractor should perform load balancing effectively.
- The voltage drop should be within limits as per the locally recognized industry standards, and the plant should be operating soundly.

Required Tools

- Earth Resistance Meter
- Insulation Resistance Tester
- Earth Loop Tester
- Clamp Meter with Phase Rotation