12 STEPS to safe isolation

These suggested 12 steps for isolating circuits and equipment are no substitute for a thorough risk assessment. However, they are a good starting point when identifying a method of safely isolating circuits and equipment.

**STEP 1**
Determine with relevant persons that it is acceptable to isolate the circuit/equipment.

**STEP 2**
Identify the type of supply system:
- **TN-S**: Double-pole main switch
- **TN-C-S**: Double-pole main switch
- **TT-DP Isolation**: All circuits and equipment

**STEP 3**
Identify which equipment and circuits need to be isolated.

**STEP 4**
Select an approved voltage indicator device to IEC 61243-3: 2010 such as the Fluke T-Series and verify on a known supply or on a proving unit e.g. Fluke PRV240.

**STEP 5**
Use the T-series Voltage and Continuity tester to verify circuit/equipment.

**STEP 6**
Identify methods of isolation.

**STEP 7**
Isolate circuit/equipment by:
- switching off double pole/three phase isolator, circuit-breakers, withdrawing fuse.

**STEP 8**
It is recommended to fit an appropriate lock off device and locks in accordance to local requirements.

**STEP 9**
Attach warning label for isolation and identified work.

**STEP 10**
Verify the circuit/equipment is isolated using a T-series Voltage and Continuity tester to verify circuit is dead.

**STEP 11**
Recheck the approved voltage indicator device is still functional on same known supply as step 4 and on the same proving unit as step 4.

**STEP 12**
Circuit/equipment should be safe to carry out the work. Always check and recheck to verify.
Safe isolation procedures for low voltage installations

Prior to beginning work on any live installation, Regulation 14 of the Electricity at Work Regulations 1989 requires that three conditions must be met. These include:

1. Circumstances make it unreasonable to conduct work on dead circuit;
2. it is reasonable given circumstances to work in or near live circuit; and
3. suitable precautions are taken prior to work. Where possible, dead work is always preferable to live work.

Where these three conditions are met, live work may proceed but minimum safe isolation procedures should be followed. These include:

1. **Identify correct isolation point or device**
   For all work on low voltage electrical equipment or circuits, it is important to ensure that the correct point of isolation is identified. When isolating the main source of energy, it is also essential to isolate any secondary sources (such as standby generators, uninterruptible power supplies and micro generators).

2. **Check condition of voltage indicating device – such as a test lamp or two-pole voltage detector.**

3. **Switch off installation /circuit to be isolated** – It should never be assumed that equipment is dead because a particular isolation device has been placed in the OFF position.

4. **Verify with voltage indicating device that no voltage is present.**
   It is important to ensure that the correct point of isolation is identified before proving dead. Adequate precautions should be taken to prevent electrical equipment which has been made dead, is carried out on or near that equipment, from becoming electrically charged during that work.

5. **Re-confirm that voltage indicating device functions correctly on proving unit.** Use proving unit to confirm that the voltage on the indicating device is functioning correctly.

6. In Germany, Switzerland, and Austria standards require additional steps, including:
   a. Carry out earthing and short circuiting
   b. Provide protection against adjacent live parts

7. **Lock-off device used to isolate installation circuit.** It is preferable for an appropriate locking –off device be used on the point of isolation.

8. **Post warning notices.** Suitable labeling of the disconnected conductors using a caution notice is vital to prevent the supply being reinstated.