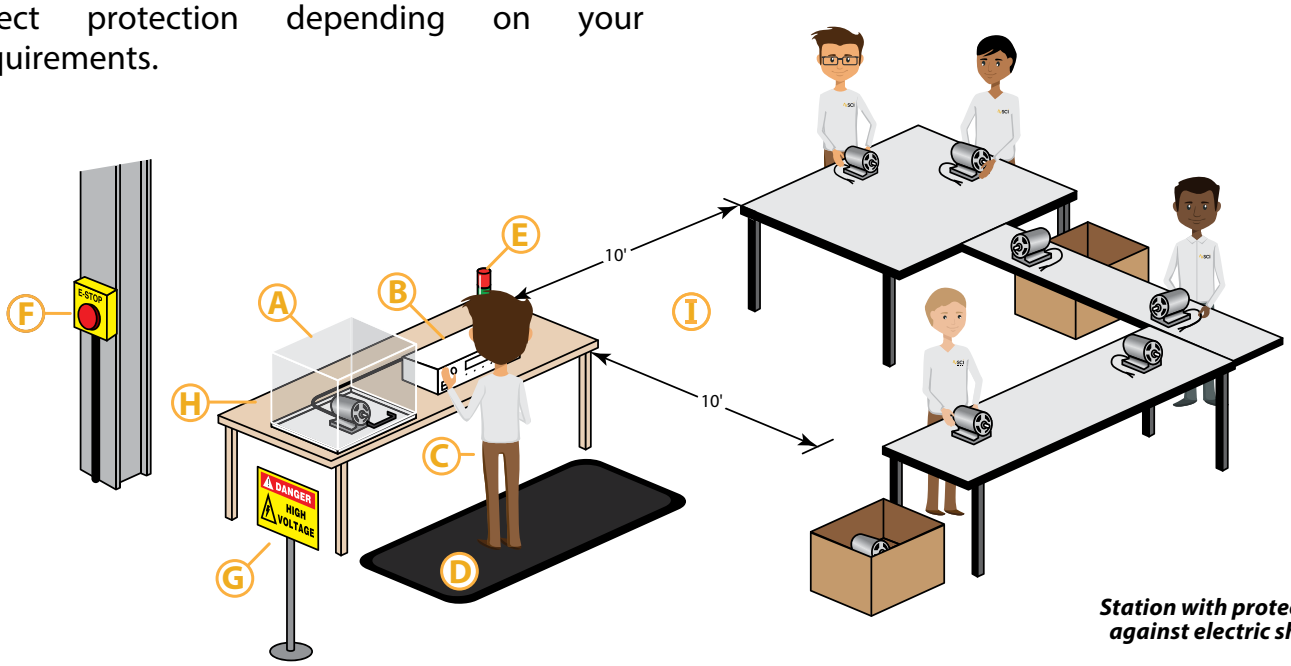
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Application Note

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Setting Up A Safe Workstation

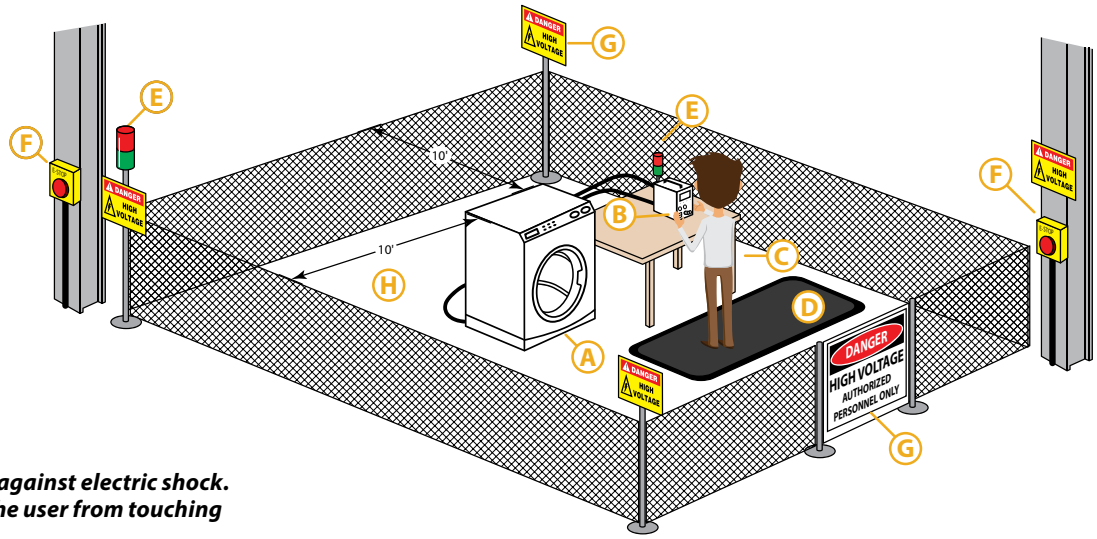
Setting up a safe and secure workstation is one of the best ways to protect your test operators. You can setup test stations with or without direct protection depending on your requirements.



Station with protection against electric shock.

	Description
A	DUT Safety Enclosure - This is wired to the Hipot tester's Remote Safety Interlock. This protects you from touching the DUT while a test is in progress. When you open the enclosure door, it will immediately disable the instrument's high voltage output.
B	Hipot Tester – Performs test on the DUT
C	Test Operator
D	High Voltage Insulation Mat – This isolates you from ground which provides an additional means of protection when operating high voltage equipment.
E	Signal Tower Light – Gives an indication as to the status of the testing area. A green light indicates the Hipot instrument is not outputting high voltage and the test area is safe. A red light indicates that the Hipot instrument is active and to stay clear of the test area.
F	Emergency Stop Button – An E-stop button is located on the perimeter of the test area. In the event of an emergency, someone outside the test area can hit the E-Stop button to immediately cut off power to the entire test station.
G	Warning Signs – Mark the testing area with clearly posted signs that read: DANGER-HIGH VOLTAGE TEST AREA. AUTHORIZED PERSONNEL ONLY.
H	Non-Conductive Work Bench – Only use a work bench made of non-conductive material such as plastic or wood. This ensures no stray leakage current could flow through you during a test.
I	NEC (National Electric Code) and NFPA (National Fire Protection Agency) stipulate that any unqualified workers shall not come within 10 feet of an EXPOSED energized circuit.

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Station without direct protection against electric shock. Such a station does NOT protect the user from touching the DUT during a test.

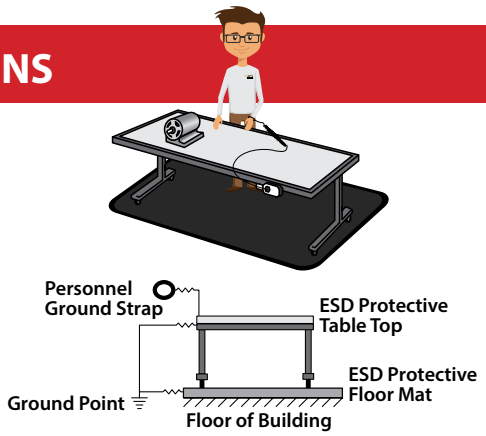
	Description
A	DUT – This large DUT (Device Under Test) prevents you from using a product safety enclosure. Instead, you must take other precautions to ensure a safe testing station.
B	Hipot Tester – Performs test on the DUT
C	Test Operator
D	High Voltage Insulation Mat – This isolates you from ground which provides an additional means of protection when operating high voltage equipment.
E	Signal Tower Light – gives an indication as to the status of the testing area. A green light indicates the Hipot instrument is not outputting high voltage and the test area is safe. A red light indicates that the Hipot instrument is active and to stay clear of the test area.
F	Emergency Stop Button – An E-stop button is located on the perimeter of the test area. In the event of an emergency, someone outside the test area can hit the E-Stop button to immediately cut off power to the entire test station.
G	Warning Signs – Mark the testing area with clearly posted signs that read: DANGER-HIGH VOLTAGE TEST IN PROGRESS. UNAUTHORIZED PERSONNEL KEEP AWAY.
H	Sectioned Off Test Area – Since the size of the DUT restricts the use of an enclosure, this test area is sectioned off by a mesh fence to keep unauthorized personnel away from the testing station. NEC (National Electric Code) and NFPA (National Fire Protection Agency)* stipulate that any unqualified workers shall not come within 10 feet of an EXPOSED energized circuit. *See NFPA 70E Table 130.2(C)

IMPORTANT INFORMATION REGARDING ESD STATIONS

WARNING

Do NOT setup electrical safety testing stations and ESD (electrostatic discharge) stations in the same area. ESD protocols protect a component or device from static discharge. They do not protect the operator from high voltage hazards.

These items intentionally ground the test operator which can cause injury or death to a high voltage test operator. You should not use ESD protocols and prevention equipment when working with voltages above 250 VAC.

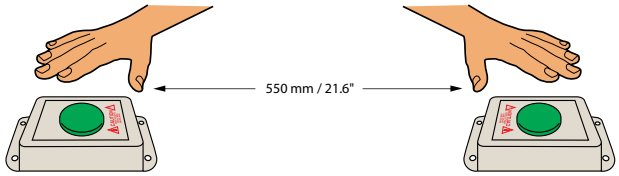


Additional Methods for Test Safety

In some cases, you may not be able to use a roped off test area or DUT enclosure. When necessary, there are other methods that you can use to protect your operators:

Dual Palm Remote Switches

Two hand operation switches force the operator to place a hand on each switch and hold them throughout the test. You should place the palm switches at least 21.6 in (550 mm) apart to prevent the operator from one hand activation of both switches.

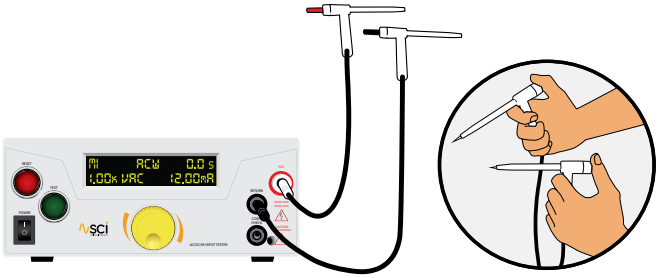


SAFETY FIRST!

This does NOT allow the operator to touch the DUT as their hands must remain on the test switches during the test.

Safety Probes

Use extended probes to contact the DUT during a test. A push button on the probe extends a conductive tip for contact to the DUT.



SAFETY FIRST!

This forces the operator to hold extended probes so that they cannot touch the DUT or instrument while a test is running.

Signal Tower Lights

These status lights illuminate RED when a test is running and GREEN when the test passes or the Hipot instrument is idle.



SAFETY FIRST!

Mounted lights warn operators in the nearby area to the status of the Hipot test and if the instrument is outputting high voltage.

Insulation Mats

High voltage insulation mats on the floor of the test area. The operator stands on the mat while testing. Rated to 20 kV - 3' x 3'.



SAFETY FIRST!

The mat isolates the operator from ground while testing which greatly mitigates the shock hazard.

ALWAYS REMEMBER

Survey the test station. Make sure it is safe & orderly.

Always keep unqualified/unauthorized personnel away from the test area.

Familiarize yourself with safety protocols in the event of a problem.

Exercise caution and never touch products or connections during a test.

Train operators. Never touch clips directly & always connect the return lead first.

You should always know when a test is being performed.

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