Electrostatic Discharge (ESD) Control with Training Certification
CD-54C / User's Guide

V.4  2/14/03
This document describes the features of CD-54C, and includes information on how to use this interactive training program.

System Requirements
Windows 95, 98, NT 4 (with Service Pack 3 or higher), 2000, XP
64 MB of RAM
250 MB hard drive space

Installation
Depending on your purchase, the CD will enable you to perform a Stand-Alone (Single User), or a Site License (LAN) installation. (The type of install is on the CD face label.)

For the Stand-Alone version, perform the installation at the computer that will serve as your training workstation. This version is for unlimited users, one-at-a-time, on a single computer, and will not function across any type of network. Student records are written to the hard drive of the computer on which the program is run. Therefore, we recommend all training take place at a single computer. In that way, all student records are stored in one location and are available for the Trainer's review from a single location.

For the Site License version, perform the installation at the trainer's workstation which is connected to the server. This version is for unlimited users, simultaneously, over a computer network at one location or facility. Student records are stored in the records folder on the server (with the other CD-54C program files).

Be sure that all other applications (software programs) are closed before you begin the installation. IMPORTANT: The user doing the installation should have Administrative privilege. When CD-54C is placed in your CD-ROM drive, it will start the setup process automatically if your computer is set to autorun. If it does not start by itself after a minute has passed, right-click your CD-ROM icon under "My Computer," select "Open," then double-click on "Setup.exe." The installation wizard will walk you through the rest of the installation process.

After installation is completed, a CD-54C shortcut icon will automatically be placed on the desktop, for quick activation of the program. Site License Shortcuts: To place a CD-54C shortcut icon on the desktop of any computer on your network, go to that particular workstation and open the CD-54C folder on the server. Run the "shortcut.exe" file by double-clicking it.

CD-54C comes with an Uninstall utility. Deleting the program will not delete existing student records. The user has the option to "delete existing records" upon running the install a second time. Or, the user may simply delete the records folder.

QuickTime
In order to play, the video in this product requires a QuickTime player to be installed on your system. CD-54C will automatically install QuickTime version 6.0 if it detects that the player is not already part of your system. Just follow the on-screen instructions for the QuickTime install at the opening of the program. A "minimum" install of QuickTime 6.0 is sufficient to play the video in CD-54C. It is not required that you have a user registration number during the QT installation. Just click the "Next" button.
For "File Type Associations," under the "QuickTime Settings" part of the installation, choose the default setting "Macintosh file types" and click "Finish." Also, it is not necessary to "launch the QT player" in order to use CD-54C. Earlier versions of QuickTime (4.0 & 5.0) that are already installed on your computer are fully compatible with this CD program and do not require QT 6.0 to be installed. The QuickTime player comes with an "Uninstall" utility, found on the Windows "Start / Programs" menu.

**Screen Settings**
This product was built to run at 800x600 resolution. If you want the image to fill your monitor, set your screen resolution to 800x600. Many computer screens operate at higher resolutions. This program will operate at higher resolutions, but it will appear smaller on the screen. If your screen is set to 640x480, the full images will not appear on your monitor. Set your monitor's color setting to 32-bit (16777216 colors) or higher (True Color) for best performance. These settings are made by right-clicking on an empty area of your desktop, choosing Properties, and selecting Settings.

**Basic Operation**
Log in: It is important that you advise new students to use the same ID number each time they enter the training program (their 9-digit Social Security number is recommended). This will enable them to resume training from the point where they last quit. If a user chooses to view the training only, without taking any of the testing or creating a student record, they may simply enter "0" as their ID or access number during log-in.

Selecting the **Begin Training** option moves the student to a brief pretest (if pretests are still enabled, see below), followed by the Section One video presentation.

This training program is designed to operate in a linear format, from beginning to end. Students must complete Section One before they move onto Section Two, etc. The training in each section builds on the information presented in each previous section.

Each section begins with an optional **Pretest** to determine the existing level of knowledge prior to training. These Pretest scores will be recorded in each individual's record for review by the trainer. The trainer may disable all the pretests if desired. If the pretests are disabled when a student enters the program, the student will not be pretested, even if they later resume the program when the pretests are enabled. In other words, how the program is set at the time a student begins training will determine how that student is tested, despite any later changes to the program. (Details for reviewing student scores or records will be explained in the Training Administration Section.)

When a student selects an answer to any question, the program highlights it. The student can still change the answer before clicking the "**Check Your Answer**" button, which will record their score and return either a "That's correct," or "Sorry, that's incorrect" message. After the video training in each section is completed, a review on that section is presented to help reinforce the learning process. No score is recorded for the **review questions**. At the end of the seven sections, a **Training Certification** test of 24 questions is presented and the student's score is displayed and recorded. The questions in the Training Certification test are the same as those presented in the pretests. This allows for a direct comparison of pre- and post-test training scores.

After the student has answered all of the Training Certification test questions, the program displays a summary score (shown as a percentage). These test scores are recorded in the student’s record. (See Training Administration for details.) The program also displays the improvement percentage between the Pretest and Certification test.
Students may want to quit the program and resume training at a later time. Students may leave or quit the program only within the video training sections. Click the **QUIT** button to leave the program. Students cannot leave the program during any test or review section. The **Resume Training** option allows the student to return to the point where they left off during their previous training session. All test scores are preserved. The date and time of first and last entry in the program, as well as the number of sessions, are also recorded.

**Training Certificates**

Students completing the Training Certification test included within CD-54C with a passing grade of 70% or better (17 or more correct answers), are eligible for **Training Certification** certificates. (An **Answer Key** is provided at the end of this document, although CD-54C will do all the testing, grading and record-keeping for you.) A reusable Training Certificate is in the "Certificate" folder on both the CD-ROM, and in the program files of your computer or network. The certificate is in Adobe Acrobat (PDF) format and allows for keyboard entry of the student name, date, and instructor name fields prior to printing. Certificates are for unlimited students in your facility.

**Training Administration**

Access Training Administration from the entry or Log-in screen by selecting the **Training Administration** button in the lower-right corner.

A **password** will be requested. Your password allows you sole access to the student records and test scores. Please remember your password for re-entry. The first person to access the Training Administration module will determine the password. (If you forget your password, you can create a new one. Perform a search for file "AP54C.inf" on your hard-drive – or on the server for the Site License version – and delete it, then restart the program.)

The first page shows a list of all of the students who have logged into the program. To check an individual’s record, click on the student’s name. You’ll see the individual’s entire record, including a summary score, or average score, for the Pretests (if taken) and the Certification test. This can give the trainer a good idea of how much a student has learned through this training program.

From Training Administration, the trainer also has the option to delete an individual record or print out a paper copy of a selected record. The "Records" folder will be stored in the location you specify for installation of the program.

**Tech Support and Latest Info**

For **technical support** on this product, please call (505) 758-7937 (dial 0 for operator) or e-mail us at techsupport@ipcvideo.org. For the latest documentation and information on this product, please go to the web: [http://training.ipc.org/cd/54c](http://training.ipc.org/cd/54c).
1. Static electricity is best described as
   a. charge induction
   b. electrostatic discharge
   c. an electrical charge at rest
   d. excessive valence electrons

2. Most people feel ESD above
   a. 2,000 volts
   b. 20,000 volts
   c. 20 volts lands
   d. 200 volts

3. ESD-sensitive components can be damaged by as little as
   a. 2,000 volts
   b. 20,000 volts
   c. 20 volts
   d. 200 volts

4. Static electricity rapidly moves from one object to another when
   a. any item is charged
   b. two objects with different charges come close together
   c. two objects with the same charge come close together
   d. none of the above

5. A conductor will
   a. prevent a wire from shorting to another wire
   b. resist the flow of electrical current
   c. prevent the risk of shock
   d. allow the flow of electrical current

6. Insulators
   a. conduct electricity
   b. prevent the flow of electricity
   c. fall somewhere in between conductors and static dissipative materials
   d. are grounding devices

7. Static dissipative materials will allow a charge to be drained to ground
   a. in a slow, controlled manner
   b. rapidly, creating an ESD event
   c. only when the relative humidity is below 30 percent
   d. too slowly to be effective for ESD control

8. Devices damaged by ESD
   a. are easily fixed by a qualified technician
   b. always fail immediately
   c. may work at first, then fail later on
   d. are not a problem as long as they pass electrical test

9. If ESD isn’t controlled, the results are usually
   a. higher costs
   b. lower product quality
   c. unhappy customers
   d. all of the above
10. The most important part of an ESD control program are the
   a. wrist and heel straps
   b. engineering controls
   c. **employees**
   d. ESD workstations

11. People who are not wearing appropriate personal grounding
   a. should not be in an ESD protected area
   b. should not touch product
   c. should not perform operations at ESD workstations
   d. **all of the above**

12. The wrist strap needs to be
   a. worn snugly against the skin
   b. attached securely to a ground wire with a current limiting resistor
   c. able to be quickly connected or disconnected
   d. **all of the above**

13. Shoe grounders are most effective for
   a. hand soldering operations
   b. **standing operations that require movement**
   c. seated operations
   d. all of the above

14. If you experience a problem when testing wrist straps or shoe grounders
   a. **let your supervisor know immediately**
   b. wiggle the wrist strap, then tap it five times
   c. place both feet on the metal plate and plug in the wrist strap
   d. all of the above

15. To control ESD, it's best to wear clothing made of cotton
   a. rayon
   b. wool
   c. **cotton**
   d. polyester

16. Moving materials against each other will
   a. neutralize an electrostatic charge
   b. neutralize one material and create an electrostatic charge in the other material
   c. **create an electrostatic charge**
   d. remove static electricity

17. Examples of non-conductive static generating materials include
   a. tape dispensers and hairbrushes
   b. vinyl binders and plastic covers
   c. styrofoam cups and plastic safety glasses
   d. **all of the above**

18. To reduce the effect of non-conductive items in the work area
   a. apply an anti-static solution
   b. use an air ionizer
   c. operate with controlled humidity
   d. **all of the above**
19. Static dissipative materials
a. dissipate humidity in the work area
b. **conduct electricity slowly enough to not damage ESD sensitive devices**
c. prevent electricity from being conducted
d. ground electricity to make charges harmless

20. If you are not sure whether a device is ESD sensitive, you should
a. **treat it as if it were ESD sensitive**
b. treat it like any other device
c. include it in the scrap report
d. none of the above

21. To control ESD in the work area
a. don’t shuffle feet when walking
b. don’t comb your hair
c. don’t touch static generating materials
d. **all of the above**

22. Components should be
a. handled only by the leads
b. **handled only by the non-conductive portion of the body**
c. pushed along a static dissipative surface rather than handled
d. none of the above

23. A sealed static shielding bag will
a. prevent physical damage
b. degrade solderability
c. **protect an enclosed device from ESD damage**
d. all of the above

24. When transporting ESD-sensitive items
a. always keep carts on ESD safe floors
b. wear your wrist strap
c. make sure the relative humidity is under ten percent
d. **use closed containers and carts designed for ESD sensitive devices**