

## DEFINITIONS and EXAMPLES

**ANSI** - The American National Standards Institute (ANSI) is a private, non-profit organization 501(c)(3) that administers and coordinates the U.S. voluntary standardization and conformity assessment system.

### **ANSI 107 Standard**

The ANSI 107 Standard defines three classes of garments depending on the level of protection required. Class 3 offers the highest level of protection. Class 2 provides superior visibility and is more conspicuous than Class 1.

The classes of garments are based on minimum areas of two elements: retro-reflective materials and background materials.

- **Retro-reflective materials** return light back to the light source, such as, back to the headlights of a vehicle.
- **Background materials** are fluorescent materials that absorb non-visible light and emit visible light and are especially effective at dusk, dawn and on cloudy days.

When combined, these two elements enhance visibility of the wearer day and night. Both the retro-reflective material and background material must have a test report from a third-party testing laboratory stating compliance with the ANSI-107 Standard. These documents must be made available to end users if requested.

The ANSI 107-1999 Standard is available from the International Safety Equipment Association; 1901 N. Moore Street, Arlington, VA 22209; 703-525-1695 or on the web at: [www.safetysafetyequipment.org](http://www.safetysafetyequipment.org)

### **Choosing the right ANSI-107 Class of Garment**

The right class of garment to use is a decision that must be made by each employer depending on the risks their workers typically encounter on the job.

Recommendations in Appendix B of the ANSI 107-1999 Standard assist in the selection of garment classes to be used. The class recommendations in the Appendix are meant to be based on the highest intermittent or continuous exposure of the worker.

More complex job sites, high worker task loads and high traffic speeds call for higher classes of garments.

At great distances and speeds the human form should be easily distinguishable.



Listed here are some conditions and examples to consider when making decisions about the type of garments you choose.

**ANSI-107 Class 1:**

**Conditions:**

- Low speed roadways
- Little visual clutter
- Activities permit full attention to traffic
- Low congestion
- Primarily off the right-of-way activities

**Examples**

- Warehouse workers
- Delivery vehicle drivers
- Shopping cart retrievers
- Parking lot attendants
- Sidewalk maintenance workers



**ANSI-107 Class 2:**

**Conditions:**

- Complex backgrounds
- Tasks that divert attention from traffic
- Activities taking place in or close to traffic
- Speeds greater than 25 mph
- Inclement weather

**Examples**

- Utility workers
- Roadway construction workers
- Emergency response personnel
- Survey crews
- Law enforcement



**ANSI-107 Class 3:**

**Conditions:**

- High-task loads that divert attention from traffic
- Full body motions conspicuous at over 1,280 ft
- High speed roadways (greater than 50 mph)
- Identification of the human form desired

**Examples**

- Law enforcement
- Utility workers
- Emergency response personnel
- Roadway construction workers

**Class E**

Class E trousers are made from the same retro-reflective and background material as Classes 1, 2 & 3 garments. When Class E trousers are worn in combination with a Class 2 vest, they form a Class 3 ensemble.



## ANSI-107 Labeling

The last thing to keep in mind when purchasing high visibility safety apparel is to look for the ANSI-107 label. The standard requires the manufacturer to attach a label that clearly states the name of the manufacturer, size of the garment, maximum number of wash cycles, care instruction (if applicable) and a pictogram showing both the class of garment and level of retro-reflective material performance.

The whole area of High Visibility Safety Apparel has just taken a big leap forward with the changes to the MUTCD. Whatever class of garment is chosen, the wearer's visibility will be greatly enhanced, day or night, good weather or bad! Good quality high visibility safety apparel is not expensive when one considers what is at risk!

## MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

According to the Federal Highway Administration, the Manual on Uniform Traffic Control Devices... "shall be recognized as the national standard for all traffic control devices installed on any street, highway... open to public travel." The Introduction section of the Federal Highway Administration's (FHWA) MUTCD website (<http://mutcd.fhwa.dot.gov/kno-2003.htm>) shows the law, chapter and verse.

The addition of the ANSI-107 recommendation to the Worker Safety Section of the new MUTCD clearly defines minimum performance requirements for high visibility safety apparel. The ANSI 107 Standard should be used as a tool when sourcing high visibility safety apparel.

## MUTCD Worker Safety Apparel Standard

The "Worker Safety" Section of the Federal Highway Administration's 2003 Edition of the Manual on Uniform Traffic Control Devices (MUTCD), now recommends that ALL roadway workers wear ANSI-107 Class 1, 2 or 3 compliant safety apparel.

### Section 6D.03, paragraph B, "Worker Safety Apparel" of the MUTCD states:

*"...all workers exposed to the risks of moving roadway traffic or construction equipment should wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Safety Apparel" (see Section 1A.11), or equivalent revisions, and labeled as ANSI 107-1999 standard performance for Class 1, 2, or 3 risk exposure. A competent person designated by the employer to be responsible for the worker safety plan within the activity area of the job site should make the selection of the appropriate class of garment."*

There is a three year target implementation (November 2006) on this change to allow current inventories of non-ANSI-107 garments to be used up. The upgrade in protection between Non-ANSI-107 and ANSI-107 is so great that the change to ANSI-107 labeled clothing should be made as soon as possible.

The entire Federal Manual on Uniform Traffic Control Devices can be downloaded from the Federal Highway Administration's website in either .pdf or .htm format at: (<http://mutcd.fhwa.dot.gov/kno-2003.htm>)

## RISK ASSESSMENT

The right class of garment to use is a decision that must be made by each employer depending on the risks their workers typically encounter on the job. It is up to the individual towing company to define what risks their employees are exposed on the job. The appendix of the ANSI-107 Standard provides guidance on risk assessment by citing examples of work zone conditions and examples of occupations that typically fall into each class.



