

## Safety Vests, High-Visibility, Flame-Resistant, Lightweight, with Zipper Closure



### 1. Scope

This standard covers the requirements for lightweight, flame-resistant, high-visibility safety vests with a zipper closure.

This standard applies to the following Seattle City Light (SCL) stock numbers:

Stock No.	Size
015033	SM
015034	MD
015035	LG
015036	XL
015037	2X
015038	3X
015039	4X
015040	5X

The requirements for lightweight, flame-resistant, high-visibility safety vests with a Velcro closure are covered in SCL 4015.15.

The requirements for *standard weight*, flame-resistant, high-visibility safety vests with a zipper closure are covered in SCL 4015.18.

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## 2. Application

Safety vests are intended to enhance visibility of the user in hazardous situations under any light conditions by day and under illumination by vehicle headlights in the dark.

Safety vests are also designed and manufactured with flame-resistant textile. This means that, when the vest is layered over AR-compliant daily wear, it will, at a minimum, not contribute to the injuries of an electrical worker exposed to an arc flash.

Safety vests have an arc thermal performance value (ATPV) rating of 4.9 cal/cm<sup>2</sup> and are intended to be layered over other flame-resistant personal protective equipment (PPE). Safety vests alone shall not be expected to offer protection against momentary electric arcs.

Standard weight safety vests with a zipper closure, specified in SCL 4015.18, serve the same need as lightweight weight safety vests, except that they offer the wearer a more durable option in cooler weather.

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## 3. Industry Standards

Safety vests shall meet the applicable requirements of the latest revision of the following industry standards:

**ANSI/ISEA 107**; American National Standard for High-Visibility Safety Apparel and Headwear

**ASTM F1506-10a**; Standard Performance Specification for Flame Resistant Textile Material for Wearing Apparel for Use by Electrical Workers Exposed to Momentary Electric Arc and Related Thermal Hazards

**NFPA 70E**; Standards for Electrical Safety in the Workplace, Annex D

**OSHA 1910.269**; Protection from Flame and Electrical Arcs, Appendix A

Zipper only:

**NFPA 2112**; Standard on Flame-Resistant Clothing for Protection of Industrial Personnel Against Short-Duration Thermal Exposures from Fire

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## 4. Requirements

### 4.1 General

Safety vest minimum areas of visible material shall meet the requirements of ANSI/ISEA 107-2015, Table 1, as clarified below:

<b>Performance class</b>	2
<b>Type</b>	R
<b>Arc performance category</b>	CAT 1

### 4.2 Fabric

Safety vest fabric shall meet the following requirements:

<b>Type</b>	95% modacrylic, 5% aramid
<b>Color</b>	Yellow
<b>Weight, nominal</b>	5.8 oz/yd <sup>2</sup>
<b>Arc Thermal Performance Value (ATPV)</b>	4.6 cal/cm <sup>2</sup> (min)

### 4.3 Binding

Binding shall meet the following requirements:

<b>Material</b>	95% modacrylic, 5% aramid
<b>Color</b>	Bright Yellow
<b>Weight, nominal</b>	5.8 oz/yd <sup>2</sup>
<b>Arc Thermal Performance Value (ATPV)</b>	4.6 cal/cm <sup>2</sup> (min)

### 4.4 Retroreflective Tape

Retroreflective tape shall meet the following requirements:

<b>Coverage</b>	All vest sizes will have a minimum of 201 square inches of tape coverage as required by ANSI/SEA 107
<b>Width</b>	2 in
<b>Fabric</b>	Silver Industrial Wash Flame Resistant Fabric, 100% FR-treated cotton, FR Reflective

### 4.5 Zippers

Zippers shall be flame resistant and tested to NFPA 2112.

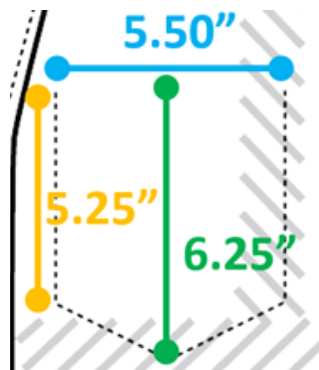
Zippers shall meet the following requirements:

<b>Material</b>	Black Nomex tape with dielectric slider
<b>Width</b>	5/8 in
<b>Length</b>	10 in

### 4.6 Pockets

Safety vest pockets shall have an inner left chest pocket of the dimensions shown in Figure 4.6.

**Figure 4.6. Safety Vest Chest Pocket Dimensions**



### 4.7 Laundering

Safety vest reflective performance shall be certified to 50 washes.

See Figure 5 for laundering instructions.

#### 4.8 Logo

Safety vests shall be furnished with the Seattle City Light Chief Seattle logo as depicted in figures 4.8a and 4.8b. The logo shall be located over the left breast and shall be placed to allow separation of approximately 1/4-in from the binding tape on fabric front opening and from the retroreflective tape.

The logo shall be a heat-transfer application, using a two-color process as specified below and depicted in Fig. 4.8b.

- Black: Logo lettering and Chief Seattle profile portion of medallion
- White: Background of Chief Seattle medallion

**Figure 4.8a. Chief Seattle Logo**



**Figure 4.8b. Chief Seattle Logo, Dimensions**



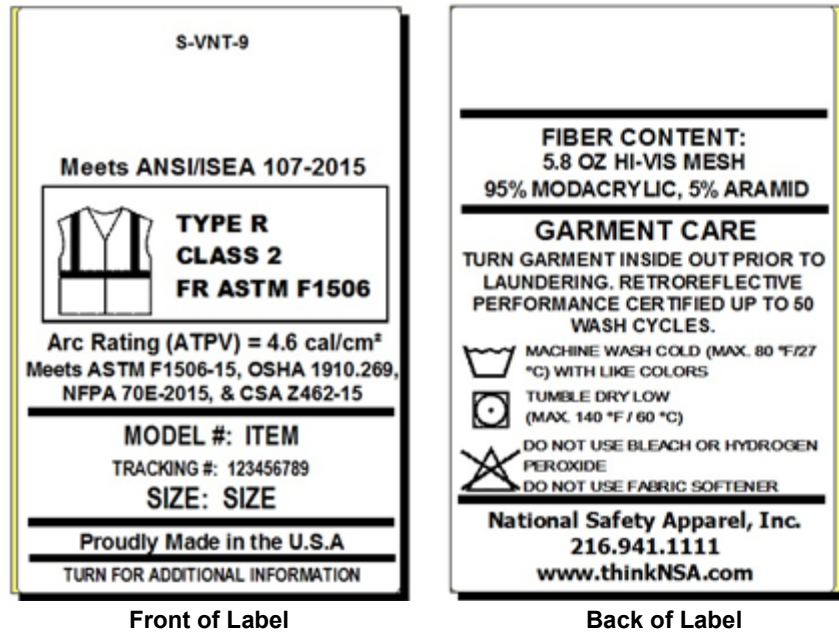
## 5. Marking

Safety vests shall be marked according to the requirements of ANSI/ISEA 107-2015, Sections 10 and 11, where this information includes, but is not limited to:

- Manufacturer name or symbol
- Product type, commercial name, or code
- Size
- ANSI/ISEA 107-2015
- Performance class
- Washing or cleaning instructions
- A label pictogram designating Z–FR or non-FR garment
- X type of garment
- Y class of garment

Labels shall be attached to the vest in accordance with ANSI/ISEA 107-2015. See Figure 5.

**Figure 5. Labels**



## 6. Testing

The following third-party tests and certifications shall be conducted that establish compliance with the requirements of ANSI/ISEA 107-2015 for flame resistance:

- Third-party certification for base material
- Third-party certification for retroreflective tape
- Third-party test for FR Declaration of Conformity

## 7. Packaging

Each standard package should be legibly marked with the following information:

- Manufacturer identification
- Product description
- Manufacturer catalog number
- Quantity

Each shipping container shall be marked with:

- Seattle City Light purchase order number
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## 8. Issuance

EA

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## 9. Approved Manufacturers

Stock No.	Size	Chest Range (in)	Minimum Length (in)	National Safety Apparel Product No.
015033	SM	29–32	27	V00HA2ZSM
015034	MD	33–36	27	V00HA2ZMD
015035	LG	37–40	27	V00HA2ZLG
015036	XL	41–44	27	V00HA2ZXL
015037	2X	45–48	27	V00HA2Z2X
015038	3X	49–52	28	V00HA2Z3X
015039	4X	53–56	28	V00HA2Z4X
015040	5X	57-60	28	V00HA2Z5X

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## 10. References

**SCL Material Standard 4015.15**; “Safety Vests, High-Visibility, Flame-Resistant, Lightweight, with Velcro Closure”

**SCL Material Standard 4015.18**; “Safety Vests, High-Visibility, Flame-Resistant, Standard Weight, with Zipper Closure”

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## 11. Sources

**Code of Federal Regulations Title 23 (Highways) Part 634**: “Use of High-Visibility Apparel When Working on Federal-Aid Highways;” US Federal Highway Administration, DOT; 2006

**Vanderpool, Laura**; SCL Standards Engineering Technical Writer, originator, and subject matter expert for 4015.21

**WAC 296-800-160**, Personal Protective Equipment (PPE), Core Rules; State of Washington Administrative Code; 2009