

## High-Visibility, Flame Resistant Safety Vests, Standard Weight



### 1. Scope

This standard covers the requirements for standard weight, high-visibility, flame resistant, safety vests.

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

<b>Stock No.</b>	<b>Size</b>
110223	Small
110224	Medium
110225	Large
110226	XLarge
110227	2XLarge
010700	3XLarge
010701	4XLarge
014602	6XLarge

The requirements for *lightweight*, high-visibility, flame resistant safety vests are covered in SCL 4015.15.

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**2. Application**

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

Safety vests are designed and manufactured with flame resistant textile so as to, at the minimum, not contribute to the injuries of an electrical worker exposed to a momentary electric arc and related thermal hazard. Safety vests have an arc thermal performance value (ATPV) rating of 5.5 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.

Lightweight, safety vests, specified in SCL 4015.15, serve the same need as standard weight, safety vests, except that they offer the wearer a more comfortable option in warmer weather.

**3. Industry Standards**

Safety vests shall meet the requirements of the following industry standards:

**ANSI/ISEA 107-2015**; American National Standard for High-Visibility Safety Apparel and Headwear

**ASTM D 6413-08**; Standard Test Method for Flame Resistance of Textiles (Vertical Test)

**ASTM F 1506-10a**; Standard Performance Specification for Flame Resistant Textile Materials for Wearing Apparel for Use by Electrical Workers Exposed to Momentary Electric Arc and Related Thermal Hazards

**NFPA 70E 2015**; Standards for Electrical Safety in the Workplace, Annex D

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

**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:

Performance class	2
Type	R

Garment design shall follow ANSI/ISEA 107-2015, Appendix C - Examples of Garment Designs, Figure C-6, Vest Pattern 3 and Figure 4.1.

**Figure 4.1. Front and Back of Safety Vest**



**4.2 Base Fabric**

Base fabric shall meet the requirements of ASTM F 1506 as clarified below:

Type	Modacrylic blend
Color	Orange
Weight, nominal	6.2 oz/yd <sup>2</sup>
Arc Thermal Performance Value (ATPV)	5.5 cal/cm <sup>2</sup> (min)

**4.3 Binding (Edging)**

Binding shall be the same as the base fabric and be turned underneath with a 3/8-in width:

Type	Modacrylic blend
Color	Orange
Weight, nominal	6.2 oz/yd <sup>2</sup>
Arc Thermal Performance Value (ATPV)	5.5 cal/cm <sup>2</sup> (min)

**4.4 Retroreflective Tape**

Horizontal Reflective Placement: There shall be two horizontal stripes 360 degrees around the torso. The first stripe shall begin 2 inches above the bottom of the vest. The second stripe shall be 2 inches above the top of the first stripe.

Front Vertical Reflective Placement: There shall be a left and right vertical stripe centered on each shoulder beginning at the top shoulder seam and continuing down to the top of the upper horizontal stripe. The vertical tape shall be sewn before the horizontal tape and continue no less than 1/2-in underneath the upper horizontal stripe.

Back "X" Reflective Placement: There shall be a left and right diagonal stripe on each shoulder beginning at the top shoulder seam and continuing down to the top of the upper horizontal stripe. The diagonal tape shall be sewn before the horizontal tape and continue no less than 1/2-in underneath the upper horizontal stripe.

**Figure 4.4. Vest Pattern 3 (Performance Class 2), ANSI/ISEA 107-2015**



Retroreflective tape shall be FR rated:

Type	Reflexite/Orafol UFR reflective material
Color	Yellow
Width	2 in

#### 4.5 Front Closure

Front closure shall be flame resistant according to the requirements of ASTM D 6413.

Front closure shall be:

Type	Flame resistant, black, hook and loop, Velcro® or approved equal
Width	1 in
Length	11 in

#### 4.6 Pockets

Safety vests shall have pockets as clarified below:

Inside front:	one on each side, 7-1/2 in x 9-1/2 in
Inside breast:	one upper left side, 5 in x 5 in

#### 4.7 Laundering

Safety vests shall be able to withstand a minimum of five washing cycles before losing their ability to meet the requirements of this standard.

#### 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 so as to allow separation of approximately 1/4-in from the binding tape on fabric front opening and from the retroreflective tape.

The custom font "Seattle Text" in Bold weight shall be used for the logo lettering.

The logo shall be printed using a two-color application 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, Actual Size**



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



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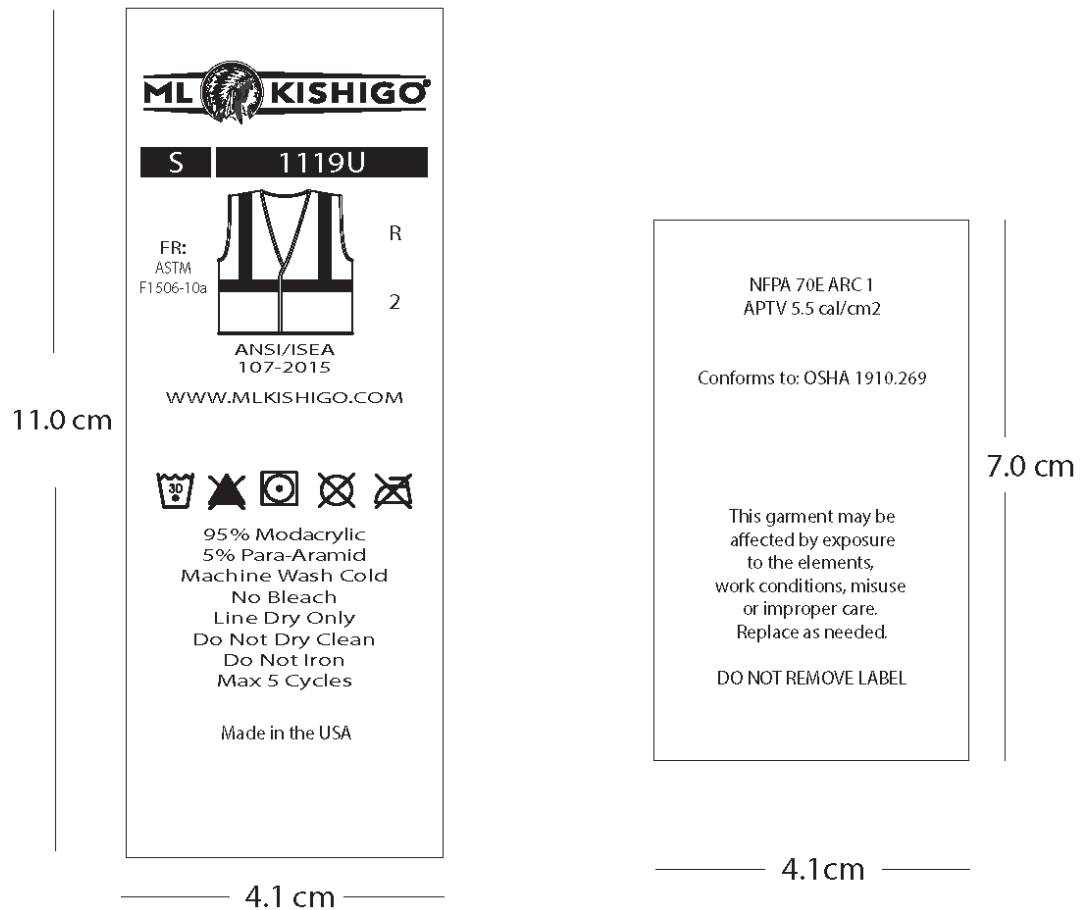
## 5. Marking

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's name or symbol
- Product type, commercial name, or code
- Size
- ANSI/ISEA 107-2015
- Performance class
- Washing or cleaning instructions
- 5A A label pictogram is required 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 shipping container shall be marked with:

- Seattle City Light purchase order number
- Seattle City Light stock number

## 8. Issuance

EA

## 9. Approved Manufacturer

Stock No.	Size	Chest Range (in)	Minimum Length (in)	M.L. Kishigo Catalog No.
110223	Small	38–40	27	F649-SMALL
110224	Medium	42–44	27	F649-MED
110225	Large	46–48	27	F649-LG
110226	XLarge	50–52	27	F649-XLG
110227	2XLarge	54–56	27	F649-XXLG
010700	3XLarge	58–60	28	F649-3XLG
010701	4XLarge	62–64	28	F649-4XLG
014602	6XLarge	74-76	32	F649-6XLG

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## 10. 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

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**WAC 296-45-906,** Personal Protective Equipment (PPE), Core Rules; State of Washington Administrative Code; 2015