**Appendix A: Survey Questions**

Survey Block 1: Informed Consent

Survey Block 2: Demographics

1. What is your age (in years)?
2. What is your gender?
3. Which of the following ethnic groups do you consider yourself to be a member (check all that apply)?
4. Department Service Type
5. Fire Service Commitment
6. Years of Experience in Fire Service
7. Rank in Fire Service
8. Current City, State of Service
9. Turnout Suit Supplier (check one)
10. What is the name of the model of your turnout suit (if known)?

Survey Block 3: Fit

1. Please indicate the importance of wearing a proper fitting turnout suit below.
   1. How important is it to wear a proper fitting turnout suit?
2. Do you believe your current turnout suit fits you properly?
   1. If no, please describe why and the specific areas of improper fit.
3. Please indicate the level of importance the fit of your turnout suit has on the following factors: comfort, range of motion, protection
4. Please indicate your level of satisfaction with the fit of your turnout suit in the following interface areas: neck/collar/hood, sleeve/glove, coat/pant, boot/pant
5. Please indicate your level of satisfaction with the fit of your turnout suit in the following areas of the garment: coat length, neckline/collar, chest, upper back, shoulder, sleeve length, armhole, upper arm, elbow, forearm, wrist, pant length, waist, crotch, hip, thigh, knee, calf, ankle
6. Please refer to the figure below when answering the following question. Which pant-rise fit do you prefer (only choose one)? low rise, mid rise, high rise

Survey Block 4: Mobility

“Mobility: the ability to move freely or easily.” “Range of Motion: the full movement of a joint; flexion and extension.”

1. Do you believe your turnout suit limits your mobility and range of motion?
   1. If yes, does the limited range of motion of your turnout suit significantly affect your: comfort, overall safety, thermal protection, liquid protection, chemical protection
2. In what area of your turnout suit is range of motion the most limited (choose only one)?
3. What area of your turnout suit provides the greatest freedom of movement (choose only one)?
4. What are the 3 most important areas for improving range of motion in your turnout suit (check only 3)?
5. What are the 3 least important areas for improving range of motion in your turnout suit (check only 3)?
6. What countermeasures do you use for improving your mobility/range of motion? (check all that apply)
7. Please indicate your level of satisfaction with the range of motion of your turnout suit when walking for each of the following garment locations using the scale below: neckline/collar, chest, sleeve, shoulder, underarm, upper back, elbow, wrist, back, waist, seat of pants, hip, crotch, knee, ankle
8. Please indicate your level of satisfaction with the range of motion of your turnout suit when bending over for each of the following garment locations using the scale below: neckline/collar, chest, sleeve, shoulder, underarm, upper back, elbow, wrist, back, waist, seat of pants, hip, crotch, knee, ankle
9. Please indicate your level of satisfaction with the range of motion of your turnout suit when kneeling/crawling for each of the following garment locations using the scale below: neckline/collar, chest, sleeve, shoulder, underarm, upper back, elbow, wrist, back, waist, seat of pants, hip, crotch, knee, ankle
10. Please indicate your level of satisfaction with the range of motion of your turnout suit when reaching out/pulling down for each of the following garment locations using the scale below: neckline/collar, chest, sleeve, shoulder, underarm, upper back, elbow, wrist, back, waist, seat of pants, hip, crotch, knee, ankle

Survey Block 5: Design

Please use the definitions and figures provided below when answering the following questions about specific design features for improved range of motion, comfort, and functionality. Terms: Articulated: having two or more sections connected by a flexible joint. Bi-Swing: a deep pleat starting at back of waistline and extending up to the shoulder on each side to avoid constriction when the wearer’s arms are extended. Gusset: a piece of material sewn into a garment to enlarge part of it.

1. Indicate the most important design features for improving mobility (check only 3): contoured/tapered coat shoulder, bi-swing back, seamless sleeve/raglan, articulated elbow, additional length over seat and knee of pants, stretch crotch gusset, articulated knee, stretch materials/panels
2. Please indicate your level of satisfaction with the comfort of your turnout suit for each of the following garment locations using the scale below: shoulder, elbow, upper back, lower back, underarm, forearm, wrist, waist, seat of pants, hips, crotch, knees, calves, ankles
3. Where do you experience the most pain/discomfort in your turnout suit? (check the top 3)
4. Where do you experience pinch points in your turnout suit? (check all that apply)
5. Do you experience discomfort when donning your gear in any of the following areas? (check all that apply)
6. Do you experience discomfort when doffing your gear in any of the following areas? (check all that apply)
7. Indicate which of the following weight distribution features you currently wear: suspenders, belt, both suspenders and belt, other
8. Please use the figures provided below when answering the following question about specific ventilation features for improved comfort and heat loss. Ventilation openings have been proven to significantly alleviate heat stress and improve firefighter thermal comfort. Would you consider adopting vents in the following locations of your turnout suit?
9. Which of the following features/options would increase the functionality of your turnout suit the most? (Check the top 3).
10. Would you consider a diagonal access front entry zipper (refer to the figure)?
    1. If no, why not?

Survey Block 6: Open-Ended Questions

1. Please answer the following questions with as much detail as possible, providing specific examples of your own gear when relevant. If you could change the fit of your turnout suit, what would you change?
2. What areas of your turnout suit coat causes the most range of motion/mobility problems for you (i.e. shoulders, upper back, underarm, etc.)?
3. What areas of your turnout suit pant causes the most range of motion/mobility problems for you (i.e. waist, crotch, hips, thighs, etc.)?
4. During what movements/activities do you experience restriction or limited range of motion?
5. If you could change the comfort of your turnout suit, what would offer more comfort to you?
6. If your turnout suit could provide more protection, what type of protection would that be (i.e. thermal, chemical, liquid, biological, etc.)?
7. What design details would you like to have incorporated into your turnout suit to make it more functional (i.e. pockets, closures, integrated hood, internal radio pocket, etc.)?
8. Are there any other concerns that you have with the mobility, fit, or comfort of your turnout gear that you have not included? If so, please discuss in detail below.