COME HOME SAFE

Part 1: Foundation - PPE Identification, Selection & Maintenance

Course Map & Full Outline

New HVAC Technicians | Total Seat Time: ~2 Hours 30 Minutes

Revision 2- additions and revisions are starred and highlighted

Client / Organization	Airstream HVAC
Audience	New & Early-Career HVAC Technicians (Part 1)
Platform	Articulate Rise 360 + Storyline 360
LMS Output	SCORM 1.2 / SCORM 2004 / xAPI
Total Modules	6 Instructional Modules + Intro + Capstone + Final Exam
Total Seat Time	~2 Hours 30 Minutes
Document Version	May 2026

Course Overview at a Glance

Total seat time is approximately 2 hours and 30 minutes. All modules are designed for 20 minute completion windows to accommodate field technicians accessing training between service calls. Rise save-on-exit is enabled throughout.

	Section	Time	Bloom's	Primary PPE Covered
Intro	Course Introduction & Pre-Assessment	10 min	—	All categories (overview only)
M1	PPE & the Hierarchy of Controls	**20 min**	R/U	★ Hard hat, ★ steel-toed boots, ★ safety vest, safety glasses, gloves (overview), labels
M2	Electrical Safety & Arc Flash PPE	25 min	U/Ap	AR clothing, face shield, arc-rated gloves, ★ hard hat (arc), ★ leather boots (arc)
M3	Refrigerant Handling & Chemical PPE	**20 min**	U/Ap/An	Chemical gloves (butyl/neoprene/nitrile), ★ cut-resistant gloves, goggles, face shield
M4	Respiratory Protection PPE	20 min	U/Ap/Ev	N95, half-mask APR, full-face APR, PAPR, SCBA
M5	Fall Protection PPE	25 min	Ap/An/Ev	Full-body harness, lanyard/SRL, anchor systems
M6	Heat Stress & Environmental PPE	15 min	R/U/Ap	Phase-change vests, cooling towels, cooling neck wraps
Cap	Capstone: PPE Scenario Challenge	15 min	Ap/An	All PPE categories - multi-hazard job scenario
Exam	Final Assessment	**15 min**	Ap/An	All modules - 20 questions, randomized bank
Total		**~2 hrs 30 min**		

PPE Coverage Commitment

Every PPE item an HVAC technician will encounter in their first years on the job is covered in this course: arc-rated clothing and electrical PPE, chemical-resistant and cut-resistant gloves, chemical splash goggles, respirators, full-body harness and fall protection systems, hard hat, steel-toed and leather work boots, high-visibility safety vest, and heat stress cooling PPE. Learners graduate with the ability to identify, select, inspect, and don every item on that list.

Course Introduction & Pre-Assessment

Time: 10 minutes | Purpose: Emotional contract, orientation, baseline

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
1	Title screen + Darius 60-sec opening	Statement block + video	'This course will teach you how to make the right call before the job goes wrong.'	
2	How this course works	Text + accordion (5 panels)	Navigation, badges, open-reference exam policy, save-and-resume, mobile use	
★ 3	★ Pre-assessment - 12 questions	★ Storyline embed	★ Unscored diagnostic across all 6 PPE categories including ★ hard hat, ★ boots, ★ vest, ★ cut gloves. Score recorded in LMS as L2 baseline.	★ Added

MODULE 1: PPE & THE HIERARCHY OF CONTROLS

⏱ 20 minutes	🎯 Remember / Understand	🏅 Safety Mindset

Module purpose: Establish the mental model that governs the entire course. Every subsequent module returns to the Hierarchy of Controls. This module also introduces all general site PPE that applies across every HVAC job - including the four items added in this revision.

Learning Objectives - Module 1

- Identify the five levels of the Hierarchy of Controls and correctly place PPE at the appropriate level (Remember)
- Identify the HVAC hazard categories covered in this course and name at least two PPE items required for each (Remember)
- Identify and name the function of general site PPE worn on every HVAC job: hard hat, steel-toed boots, safety vest, and safety glasses (Remember)
- Select the correct PPE type for a given HVAC hazard category from a provided list (Apply)
- Read an arc flash label, SDS document, and GHS chemical label and identify which PPE each label requires (Apply)
- Inspect a hard hat, steel-toed boots, and safety vest and identify any condition requiring replacement (Apply)

Lesson 1.1 - The Hierarchy of Controls | 8 minutes

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
Hook	Injury stat + hierarchy frame	Statement block	'PPE doesn't prevent the hazard. It's the last thing standing between you and it.' OSHA Fatal Four stat.	
Flashcards	Key terms x 5	Flashcard block	Elimination, Substitution, Engineering Controls, Administrative Controls, PPE	
Content A	Hierarchy pyramid	Labeled image (5 hotspots)	Five levels with HVAC examples at each level. PPE is always shown at the bottom.	
Content B	Why PPE is last	Accordion (3 panels)	What happens when upper controls fail and PPE is the only protection remaining	
Pro Tip	OSHA hazard assessment	Callout block	'OSHA requires a written hazard assessment before selecting PPE. That assessment determines which controls apply - PPE is selected last, not first.'	
KC	3 scenario questions	Knowledge check	Given a hazard, identify highest-order control; determine when PPE is required	
Summary	5 key takeaways	Text block	Hierarchy levels; PPE as last line; hazard assessment as the trigger	

Lesson 1.2 - General Site PPE & HVAC Hazard Categories | 10 minutes ★ REVISED

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
★ Hook	★ Every job, every time	★ Statement block	★ 'Before any specialized PPE, there are four things you put on for every HVAC job. No exceptions. This lesson starts there.'	★ Added
★ Flashcards	★ Key terms x 6	★ Flashcard block	★ Hard hat (Type I/II, Class E/G/C), steel-toed boot (ASTM F2413), safety vest (ANSI/ISEA 107), cut-resistant glove, safety glasses (ANSI Z87.1)	★ Added
★ Content A	★ General site PPE - the baseline four	★ Labeled image (4 hotspots)	★ Hard hat: Type II Class E shown with cutout labels - shell, suspension, date stamp. Steel-toed boots: ASTM F2413 compliance label. Safety vest: retroreflective tape, ANSI 107 Class 2. Safety glasses: ANSI Z87.1 marking on lens.	★ Added
★ Content B	★ Inspecting daily PPE	★ Process block (4 items)	★ Hard hat: check shell for cracks, check suspension for fraying, check date stamp (5-yr shell / 1-yr suspension). Boots: check toe cap separation, sole wear, puncture damage, chemical contamination. Safety vest: check retroreflective tape integrity, fasteners, tears. Safety glasses: check for scratches, frame cracks, lens markings present.	★ Added
			★ Tab 1: Electrical - AR ensemble. Tab 2: Chemical/Refrigerant - chemical gloves, goggles, face shield.	

★ Content C	★ HVAC hazard categories + PPE	★ Tabs block (5 tabs + 1)	Tab 3: Respiratory - respirators by APF. Tab 4: Fall/Elevation - PFAS components. Tab 5: Heat - cooling PPE. Tab 6 (NEW): Every Job - hard hat, steel-toed boots, safety vest, safety glasses appear here as baseline across all categories.	★ Added
★ Prior Knowledge	★ Daily PPE prompt	★ Reflection block	★ 'What PPE do you currently put on before every job? What do you skip? What does this lesson change about that routine?'	★ Added
Scenario	Drag-and-drop PPE match	Storyline embed	5 HVAC job descriptions → learner matches each to hazard category. Each correct answer reveals the full PPE ensemble including the baseline four.	
★ KC	★ 3 questions	★ Knowledge check	★ Identify general site PPE, inspection failure, and PPE selection for a given job type	★ Added
Summary	All PPE categories + baseline four	Text block	General site PPE; 5 hazard categories; inspection triggers	
★ Resource	★ General Site PPE Inspection Card	★ Downloadable PDF	★ Hard hat, boots, vest, safety glasses — daily inspection checklist, laminated-card format	★ Added

Lesson 1.3 - Reading Safety Labels: Arc Flash, SDS & GHS | 7 minutes

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
Hook	Label frame	Statement block	'Every piece of safety information you need is already on the label. This lesson teaches you to read it.'	
Flashcards	Key terms x 6	Flashcard block	Incident energy, SDS, GHS, pictogram, PPE category, flash boundary	
Content A	Arc flash label anatomy	Labeled image (5 hotspots)	Incident energy, PPE category, flash boundary, working distance, date of study	
Content B	SDS Section 8	Accordion block	What to look for in Section 8 (Exposure Controls/PPE), what it tells you to wear	
Content C	GHS label pictograms	Tabs block (3 tabs)	9 pictograms with the hazard they signal and the PPE each requires	
KC	3 label questions	Knowledge check	Given a label image, identify the required PPE	
Pro Tip	PPE Category = engineering requirement	Callout block	'If the label says PPE Category 2, that is not a suggestion. It is a calculated engineering requirement.'	
Summary	3 label types	Text block	Arc flash / SDS Section 8 / GHS - what to look for and what PPE decision each drives	
Resource	Label Literacy Reference Card	Downloadable PDF	Arc flash label, SDS Section 8, GHS pictogram guide - laminated-	

			card format	

MODULE 2: ELECTRICAL SAFETY & ARC FLASH PPE

⏱ 20 minutes	🎯 Understand / Apply	🏅 Arc Flash Guardian

Module purpose: Electrical hazards are the highest-consequence HVAC hazard. Focus entirely on identifying, selecting, inspecting, and donning the correct arc-rated PPE ensemble. Hard hats and leather boots appear here in their arc-flash-specific context, reinforcing what was introduced as general site PPE in Module 1.

Learning Objectives - Module 2

- Identify the components of an arc-rated PPE ensemble: AR clothing, arc-rated face shield, arc-rated hard hat, rubber insulating gloves with leather protectors, and leather work boots (Remember/Understand)
- Differentiate between FR and AR clothing and select the correct type for an arc flash scenario (Understand/Apply)
- Use an arc flash label to identify the required NFPA 70E PPE category and select all required PPE items for that category (Apply)
- Inspect an arc-rated PPE ensemble - including hard hat and boots - and identify any item requiring removal from service (Apply)
- Don an arc-rated PPE ensemble in the correct sequence (Apply)
- Examine an electrical work scenario and identify all missing or incorrect PPE items (Analyze)

Lesson 2.1 - Arc Flash Hazard & Why PPE Matters | 5 minutes

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
Hook	Tristan Stone story	Statement block	23 years old. 3 months on the job. 'He didn't know the difference between FR and AR. Now you will.'	
Flashcards	Key terms x 6	Flashcard block	AR clothing, FR clothing, cal/cm², incident energy, PPE Category, arc flash boundary	
Content A	What arc flash is	Text block + stat	Why it is lethal; why time-to-ignition is measured in fractions of a second	
Content B	FR vs. AR	Accordion (2 panels)	FR resists ignition but provides no arc energy protection. AR is rated by cal/cm² and provides both. They are NOT the same.	
Pro Tip	FR ≠ AR	Callout block	'Wearing the wrong shirt is not better than wearing no shirt - it can make injuries worse. NFPA 70E Category 1 requires minimum 4 cal/cm² arc rating. Check the label on your gear.'	
Summary	3 key facts	Text block	What arc flash is; why FR ≠ AR; what cal/cm² means	

Lesson 2.2 - Identifying & Selecting Arc Flash PPE | 8 minutes

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
Hook	Label = your guide	Statement block	'The arc flash label on the panel tells you exactly what to wear. This lesson teaches you to read it and select correctly.'	
Content A	NFPA 70E PPE Categories 1-4	Table in text block	What each category requires; minimum arc rating; HVAC scenarios in each category	
★ Content B	**★ Complete arc-rated PPE ensemble**	**★ Labeled image (8 hotspots)**	**★ AR shirt/pants, ★ arc-rated hard hat with face shield, arc-rated balaclava, rubber insulating gloves with leather protectors, ★ leather work boots - each hotspot names the item, its arc rating requirement, and its specific protection purpose**	**★ Added**
Prior Knowledge	Arc flash label recall	Reflection block	'Think about the last time you saw an arc flash warning label. What did you notice? What did you not notice?'	
Scenario	Arc flash label reading + PPE selection	Storyline embed	Arc flash label displayed. Learner selects PPE category and all required items. Three paths: correct / FR shirt substituted for AR / face shield missing. Feedback reveals why each wrong selection is dangerous.	
★ KC	**★ 2 questions**	**★ Knowledge check**	**★ Given incident energy, select correct PPE category; given category, identify all required items including hard hat and boots**	**★ Added**

Summary	Label → PPE decision	Text block	How to read an arc flash label and translate it to a complete PPE selection decision	

Lesson 2.3 - Inspecting & Donning Arc Flash PPE | 7 minutes

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
Hook	Inspection frame	Statement block	'PPE that passes inspection protects you. PPE that fails inspection is a false sense of security.'	
★ Content A	**★ Pre-use inspection checklist**	**★ Process block (6 steps)**	**★ AR clothing (holes, burns, oil contamination, label check). Face shield (cracks, scratches on arc shield). Rubber insulating gloves (air test, ozone cracking, voltage rating date). Leather protectors (holes). ★ Arc-rated hard hat (shell cracks, suspension check, date stamp, face shield attachment). ★ Leather work boots (sole integrity, toe cap, no synthetic materials in the arc flash zone).**	**★ Added**
Video	Darius: inspection + donning	Video block (3 min)	Full pre-use inspection and donning sequence on camera. In field gear. On a real job site. Narrated, closed captioned.	
Do	Step-sequencing activity	Storyline embed	Learner places donning steps in correct order. Wrong order triggers consequence explanation.	
Feedback	Correct sequence	Debrief screen	Correct donning sequence revealed with brief rationale for each step's position	
Pro Tip	Oil contamination warning	Callout block	'If your AR clothing is contaminated with petroleum products, it must be laundered before use. The contamination can make it flammable.'	

Summary	Inspection criteria + donning sequence	Text block	Criteria for each ensemble component including hard hat and boots; donning sequence	
★ Resource	**★ Arc Flash PPE Inspection & Donning Checklist**	**★ Downloadable PDF**	**★ Includes hard hat and leather boots inspection criteria — laminated-card format**	**★ Added**

Lesson 2.4 - What's Wrong Here? Electrical PPE Challenge | 5 minutes

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
★ Hook	**★ Photo challenge**	**★ Statement block**	**★ 'A photo. A technician. An electrical panel. Six things wrong. Find them all.'**	**★ Added**
★ Challenge	**★ Job-site annotation**	**★ Storyline hotspot**	**★ Tech about to open a 480V panel. 6 violations: FR shirt (not AR), no face shield (only safety glasses), leather work gloves (not rubber insulating), arc flash label mismatch, ★ standard hard hat (not arc-rated), ★ athletic shoes (not leather work boots). Each click reveals violation + risk + correct PPE.**	**★ Added**
★ Feedback	**★ Full debrief**	**★ Debrief screen**	**★ All 6 violations listed with NFPA 70E citation for each**	**★ Added**
Module KC	5 questions	Knowledge check (70%+)	AR vs FR selection, PPE category from label, inspection failure ID, donning sequence, violation ID	
Badge	Arc Flash Guardian	Statement block	Badge awarded on passing. Points displayed.	

MODULE 3: REFRIGERANT HANDLING & CHEMICAL PPE

⏱️ 20 minutes	🎯 Understand / Apply / Analyze	🏅 Refrigerant Ready

Module purpose: Chemical PPE for refrigerant work is routinely skipped because the hazard is invisible until it isn't. This module covers chemical PPE and adds cut-resistant gloves as a distinct glove category for HVAC tasks that create cut hazards -sheet metal, duct work, copper line work. Learners understand that cut-resistant gloves and chemical-resistant gloves are not interchangeable.

Learning Objectives - Module 3

- Identify the PPE required for refrigerant handling regardless of refrigerant type: chemical-resistant gloves, chemical splash goggles, face shield (Remember/Understand)
- Select the correct glove material (butyl rubber, neoprene, nitrile, or cut-resistant) for a given HVAC task (Apply)
- Explain why cut-resistant gloves cannot substitute for chemical-resistant gloves and vice versa (Understand)
- Select the correct eye and face PPE for a refrigerant recovery scenario versus a refrigerant spill scenario (Apply)
- Don and doff a chemical PPE ensemble in the correct sequence (Apply)
- Given an unlabeled refrigerant cylinder scenario, identify which PPE must be in place before any handling begins (Analyze)

Lesson 3.1 - Chemical Hazards in Refrigerant Work | 6 minutes

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
Hook	Carlos story	Statement block	Carlos skipped his gloves. 'Just a quick disconnect.' Liquid R-410A. Frostbite. Nerve damage. He calls his wife from the parking lot.	
Flashcards	Key terms x 7	Flashcard block	Cryogenic burn, chemical-resistant, butyl rubber, neoprene, nitrile, A2L, chemical splash goggles	
Content A	Why refrigerant PPE is required	Accordion (3 panels)	Cryogenic burns from liquid contact; eye injury from splash; frostbite; chemical burns. Brief ASHRAE 34 safety class context for PPE selection.	
Content B	Four required chemical PPE items	Labeled image (4 hotspots)	Chemical-resistant gloves, chemical splash goggles, face shield over goggles, long-sleeve clothing	
Pro Tip	Goggles vs. glasses	Callout block	'Sunglasses are not chemical splash goggles. Safety glasses are not chemical splash goggles. If there is a pressurized refrigerant connection, you wear goggles. Every time.'	
Summary	4 required items; why each is required	Text block		

Lesson 3.2 - Selecting the Right Glove | 7 minutes ★ EXPANDED

★ NEW - Revision Note - Lesson 3.2

Cut-resistant gloves have been added as a fourth glove type in this lesson. The lesson now covers: Butyl Rubber (chemical), Neoprene (chemical), Nitrile (chemical/light duty), and Cut-Resistant (ANSI/ISEA 105 rated). The key learning point added is the non-substitution rule: a cut-resistant glove does not protect against chemical exposure, and a chemical-resistant glove does not protect against cut hazards. HVAC tasks are specified for each glove type. The drag-and-drop scenario now includes at least one cut-hazard task requiring cut-resistant gloves.

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
★ Hook	★ Wrong glove = no protection	★ Statement block	★ 'Not all gloves protect against all chemicals or hazards. The wrong glove material can fail in seconds of contact - or leave you unprotected from a blade.'	★ Added
★ Content A	★ Four glove types for HVAC work	★ Tabs block (4 tabs)	★ Tab 1 - Butyl Rubber: best for most refrigerants, high chemical resistance, required for high-risk scenarios, HVAC tasks listed. Tab 2 - Neoprene: good general chemical resistance, acceptable for lower-risk tasks. Tab 3 - Nitrile: limited refrigerant resistance, appropriate for light handling only. Tab 4 ★ - Cut-Resistant (ANSI/ISEA 105): for sheet metal handling, duct fabrication, copper line cutting, rotating equipment proximity. ANSI cut levels A1–A9 briefly explained; HVAC typically requires A3–A4 minimum for sheet metal.	★ Added
★ Content B	★ The non-substitution rule	★ Callout block	★ ★ 'A cut-resistant glove is not chemical-resistant. A chemical-resistant glove is not cut-resistant. You may need both on the same job - one for the sheet metal work, a different pair for the refrigerant connection. Never assume one glove covers both hazards.'	★ Added
Content C	Eye and face PPE selection	Accordion (3 panels)	Recovery scenario (goggles + face shield - pressurized line risk). Spill response (goggles mandatory).	

			Inspection only (goggles recommended).	
★ Scenario	★ Drag-and-drop glove matching	★ Storyline drag-and-drop	★ 5 HVAC tasks → learner drags correct glove type to each. Tasks: refrigerant recovery line connection (butyl rubber), Schrader valve access on R-32 (butyl rubber), ★ sheet metal duct fabrication (cut-resistant A3+), high-pressure fitting removal on R-410A commercial system (butyl rubber), ★ rough copper pipe cutting (cut-resistant A4+). Feedback explains material match rationale.	★ Added
★ KC	★ 3 questions	★ Knowledge check	★ Glove material for given task; non-substitution rule; eye/face PPE for recovery vs. inspection	★ Added
★ Summary	★ 4-glove guide + non-substitution rule + eye/face PPE	★ Text block	★ Summary	★ Added
★ Resource	★ Refrigerant & Glove Selection Card	★ Downloadable PDF	★ ★ Updated to include cut-resistant gloves alongside chemical glove types; HVAC task-to-glove reference	★ Added

Lesson 3.3 - Donning, Doffing & the Unlabeled Cylinder | 7 minutes

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
Hook	Donning order matters	Statement block	'Putting on chemical PPE in the wrong order defeats the purpose. Doffing it wrong contaminates you with what you were trying to keep off.'	
Content A	Donning sequence	Process block (5 steps)	Long-sleeve garment → inner nitrile glove → chemical splash goggles → outer butyl rubber glove → face shield. Why each step's position matters.	
Video	Carlos: donning + doffing	Video block (3 min)	Chemical PPE ensemble on camera. Doffing sequence in detail - how to remove outer gloves without touching the contaminated surface. Narrated, closed captioned.	
Prior Knowledge	Unlabeled cylinder recall	Reflection block	'Have you ever handled a refrigerant cylinder without knowing exactly what was in it? What did you do?'	
Scenario	Unlabeled cylinder branching	Storyline embed	3 choices: proceed assuming R-410A / identify refrigerant + full PPE / skip and call dispatcher. Branch A shows consequence. Branch B shows correct protocol. Branch C shows job incomplete.	
Feedback	Correct path debrief	Debrief screen	What PPE must be in place before any unlabeled cylinder is handled, regardless of assumed refrigerant type	

Summary	Donning/doffing sequence + unlabeled cylinder protocol	Text block		

Lesson 3.4 - What's Wrong Here? Chemical PPE Challenge | 3 minutes

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
Challenge	Refrigerant recovery scene	Storyline hotspot	5 violations: no gloves, safety glasses only (no goggles), no face shield, phone to ear, cylinder unlabeled. Learner clicks each violation.	
Feedback	Full debrief	Debrief screen	All violations listed with citation for each	
★ Module KC	**★ 5 questions**	**★ Knowledge check (70%+)**	**★ Required PPE for refrigerant handling, glove material selection, cut-resistant glove application, eye/face PPE, donning sequence**	**★ Added**
Badge	Refrigerant Ready	Statement block	Badge awarded on passing	

MODULE 4: RESPIRATORY PROTECTION PPE

🕑 20 minutes	🎯 Understand / Apply / Evaluate	🏅 Clean Air Certified

Module purpose: Respiratory hazards are invisible. This module covers identifying which respirator type is required for a given HVAC air quality scenario, selecting the correct cartridge, inspecting a respirator before use, and performing a seal check. No new PPE additions in this module - no change from Version 1.

Learning Objectives - Module 4

- Identify the five respirator types used in HVAC work and match each to its Assigned Protection Factor (APF) (Remember/Understand)
- Select the correct respirator type for three distinct HVAC air quality scenarios based on the hazard present (Apply)
- Select the correct NIOSH cartridge color for a given contaminant type (Apply)
- Perform a positive and negative pressure user seal check on a half-mask APR (Apply)
- Inspect a respirator and identify any condition requiring removal from service before use (Apply)
- Assess a given attic work scenario and determine whether an N95 provides sufficient protection or a higher-APF respirator is required (Evaluate)

Lesson 4.1 - Respiratory Hazards & Respirator Types | 8 minutes

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
Hook	Jasmine story	Statement block	'She had her N95 - the good one, she said. The insulation contained chrysotile asbestos. An N95 is not sufficient protection for asbestos. She was exposed.'	
Flashcards	Key terms x 8	Flashcard block	N95, APR, APF, HEPA, P100, organic vapor, IDLH, cartridge	
Content A	5 HVAC respiratory hazards	Tabs block (5 tabs)	Mold, asbestos, refrigerant vapor, fiberglass, CO - each with HVAC scenario, body system affected, one-sentence consequence	
Content B	5 respirator types	Accordion (5 panels)	N95 FFP, half-mask APR, full-face APR, PAPR, SCBA - APF value, what it protects against, HVAC application, limitation	
Pro Tip	APF math	Callout block	'APF 10 means the respirator reduces your exposure to 1/10th of the ambient concentration. If the hazard requires APF 50, an N95 (APF 10) is not sufficient.'	
Summary	5 hazard types; 5 respirator types; APF values	Text block		

Lesson 4.2 - Selecting the Right Respirator & Cartridge | 7 minutes

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
Hook	Right respirator, right cartridge	Statement block	'The right respirator worn wrong is still wrong. The wrong respirator worn right is still wrong.'	
Content A	NIOSH cartridge color coding	Labeled image (hotspots)	6 primary cartridge colors with HVAC-specific applications: organic vapor for refrigerant vapors; P100/HEPA for asbestos, mold, fiberglass; combination for multi-hazard attic work	
Scenario	3 HVAC air quality scenarios	Storyline sequence	Scenario A: 1975 attic, disturbed insulation, dark staining - half-mask APR with P100 required (not N95). Scenario B: refrigerant recovery in mechanical room - half-mask with organic vapor cartridge. Scenario C: outdoor rooftop coil cleaning - N95 acceptable for dust only. Feedback explains APF rationale.	
KC	3 questions	Knowledge check	Correct respirator for scenario, correct cartridge for contaminant, why N95 insufficient for asbestos	
Summary	Respirator selection framework	Text block	Identify hazard → determine APF required → select respirator → select cartridge	
Resource	Respirator Selection Guide for HVAC	Downloadable PDF	Hazard → respirator → cartridge reference card	

Lesson 4.3 - Inspecting, Seal Checking & Donning | 5 minutes

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
Hook	Seal = protection	Statement block	'A respirator with a bad seal provides essentially no protection. You will breathe what you were trying not to breathe.'	
Content A	Pre-use inspection checklist	Process block (5 steps)	Facepiece (cracks, tears, distortion), straps (breaks, elasticity), cartridges (expiration, correct type, seating), exhalation valve, inhalation valve	
Video	Jasmine: inspection + seal check + donning	Video block (2.5 min)	Pre-use inspection, donning, positive pressure check, negative pressure check. Narrated, closed captioned.	
Do	Seal check simulator	Storyline interaction	Learner sequences steps for positive then negative pressure check. Wrong sequence triggers explanation.	
Pro Tip	Seal check every time	Callout block	'A seal check is performed every single time you don the respirator. Facial hair, glasses, or a different headgear can break your seal even on a respirator that fit correctly yesterday.'	
Module KC	5 questions	Knowledge check (70%+)	Respirator type selection, cartridge selection, inspection failure ID, seal check procedure, N95 sufficiency evaluation	
Badge	Clean Air Certified	Statement block	Badge awarded on passing	

MODULE 5: FALL PROTECTION PPE

⏱️ 20 minutes	🎯 Apply / Analyze / Evaluate	🏅 Heights Defender

Module purpose: Falls are the leading cause of construction fatalities. Focus on identifying PFAS components, selecting the appropriate fall protection system, inspecting a harness using the ABCDE framework, and donning correctly. No changes to PPE coverage -steel-toed and leather boots are already covered in Modules 1 and 2. No new additions in this module.

Learning Objectives - Module 5

- Identify the components of a personal fall arrest system: full-body harness, connecting lanyard or SRL, and anchor point (Remember/Understand)
- Select the appropriate fall protection system (guardrail, personal fall arrest, or restraint) for a specific rooftop HVAC job scenario (Apply)
- Inspect a full-body harness using the ABCDE framework and identify any condition requiring removal from service (Apply)
- Don a full-body harness in the correct sequence and verify D-ring positioning (Apply)
- Examine a rooftop work scenario and identify all missing or incorrectly used fall protection PPE (Analyze/Evaluate)

Lesson 5.1 - Fall Hazards & PFAS Components | 6 minutes

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
Hook	Marcus story	Statement block	'He sat on that roof for 20 minutes before his legs stopped shaking. He called his wife before he called his dispatcher. He went back the next week. With his harness.'	
Flashcards	Key terms x 9	Flashcard block	PFAS, full-body harness, SRL, self-retracting lifeline, lanyard, D-ring, anchor point, shock absorber, deceleration device	
Content A	HVAC rooftop fall hazard landscape	Text + labeled image	Parapet walls that don't qualify as guardrails, skylights, conduit runs, sloped membrane roofs, rooftop equipment proximity to edges	
Content B	3 fall protection system types	Tabs block (3 tabs)	Guardrail (passive), PFAS (active - harness/connector/anchor), Restraint (active - limits travel). When each applies in HVAC rooftop work.	
Content C	PFAS components diagram	Labeled image (5 hotspots)	Full-body harness, lanyard or SRL, anchor point - each labeled with function and load requirement	
Summary	3 system types; PFAS components and functions	Text block		

Lesson 5.2 - Selecting the Right Fall Protection System | 5 minutes

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
Hook	Which system?	Statement block	'The question on every rooftop job is not whether you need fall protection. The question is which system applies here.'	
Content A	System selection decision tree	Process block	Compliant guardrail in place? → Use it. Anchor point available + no guardrail? → PFAS. Task within controllable distance from edge? → Restraint.	
Scenario	3 rooftop scenarios	Storyline sequence	Scenario A: flat roof, no guardrail, anchor points on mechanical units — PFAS required. Scenario B: compliant 42" parapet on 3 sides, work away from open edge — guardrail sufficient. Scenario C: approaching roof edge to inspect drain — restraint system required. Feedback explains decision logic.	
KC	2 questions	Knowledge check	Given rooftop description, select correct fall protection system type	
Summary	Decision criteria for guardrail vs. PFAS vs. restraint	Text block		

Lesson 5.3 - Inspecting & Donning a Full-Body Harness | 7 minutes

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
Hook	Inspection = 2 minutes	Statement block	'A harness with a damaged component fails at the worst possible moment. Inspection takes 2 minutes. Falling takes less than a second.'	
Content A	ABCDE inspection framework	Process block (5 steps)	Abrasion (webbing worn/frayed/cut), Buckles (cracks/distortion/corrosion), Chest strap (mid-chest position), D-ring (bends/cracks/sharp edges - your attachment point), Entire system (stitching, burns, chemical contamination, labels readable, no modifications)	
Video	Marcus: ABCDE inspection + donning	Video block (4 min)	Full inspection and donning sequence on a real rooftop in actual field conditions. Narrated, closed captioned.	
Do	Harness inspection simulation	Storyline simulation	Illustrated harness with 4 embedded defects - abraded webbing, cracked buckle, bent D-ring, faded label. Learner must find all 4 before approving for use.	
Feedback	All 4 defects revealed	Debrief screen	Removal-from-service criteria for each defect	
Pro Tip	Post-fall retirement	Callout block	'A harness that has arrested a fall must be removed from service immediately - even if it looks undamaged. Tag it and report it.'	
	ABCDE framework;			

Summary	donning sequence; removal triggers	Text block		
Resource	Fall Protection Pre-Task Checklist	Downloadable PDF	Harness inspection, anchor confirmation - laminated-card format	

Lesson 5.4 - What's Wrong Here? Fall Protection Challenge | 5 minutes

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
Challenge	Rooftop annotation	Storyline hotspot	5 violations: D-ring at hip (not upper back), lanyard on non-rated anchor (conduit), skylight with no guarding, within 6 feet of unguarded parapet, no rescue plan evident. Learner clicks each violation.	
Feedback	All 5 violations revealed	Debrief screen	Correction for each violation	
Module KC	5 questions	Knowledge check (70%+)	System selection, ABCDE inspection, donning sequence, D-ring positioning, violation ID	
Badge	Heights Defender	Statement block	Badge awarded on passing	

MODULE 6: HEAT STRESS & ENVIRONMENTAL PPE

⏱️ 15 minutes	🎯 Remember / Understand / Apply	🏅 Heat Shield

Module purpose: Heat stress is the most under-recognized HVAC hazard. This module covers what cooling PPE exists, how to select it for the conditions, and how to inspect it before use. No new PPE additions in this module - no change from Version 1.

Learning Objectives - Module 6

- Identify the cooling PPE options available for HVAC heat environments: phase-change vests, cooling towels, and cooling neck wraps (Remember)
- Select appropriate cooling PPE for a given HVAC heat scenario based on environment type and temperature conditions (Apply)
- Identify the pre-activation requirement for phase-change vests and explain why skipping it reduces protection (Understand)
- Inspect cooling PPE before use and identify any item that is no longer functional or requires replacement (Apply)

Lesson 6.1 - Heat Hazards & Cooling PPE Options | 8 minutes

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
Hook	Matt Nelson story	Statement block	'Matt Nelson collapsed in a residential attic that reached 150°F. He survived. He has permanent kidney damage. He was in there for 45 minutes. He wasn't wearing any cooling PPE.'	
Flashcards	Key terms x 6	Flashcard block	Phase-change vest, cooling towel, heat cramps, heat exhaustion, heat stroke, rhabdomyolysis	
Content A	HVAC heat hazard environments	Accordion (4 panels)	Residential attics (130–160°F peak), rooftop work in direct sun, mechanical rooms with boiler/process equipment, vehicle cab heat - each with typical temperature range and exposure time guidance	
Content B	3 cooling PPE types	Tabs block (3 tabs)	Phase-change vests (sustained heat exposure - attics, mechanical rooms), cooling towels (supplemental - outdoor rooftop), cooling neck wraps (outdoor moderate heat). Each: how it works, when to use, how long protection lasts.	
Content C	Phase-change vest activation	Process block (3 steps)	Soak in cold water or place in cooler 15–30 min before donning. Skipping = no cooling. Plan your cool-down time before you enter the attic.	
Pro Tip	Activation is not optional	Callout block	'A phase-change vest worn without pre-activation is just a vest. It provides no thermal protection.'	

Summary	3 cooling PPE types; when each applies; activation requirement	Text block		

Lesson 6.2 - Selecting & Inspecting Cooling PPE | 7 minutes

#	Lesson / Block	Rise Element	Content / Purpose	New Item?
Hook	Inspection frame	Statement block	'Cooling PPE that has degraded provides false confidence. Know what to look for before you need it to work.'	
Content A	Cooling PPE inspection criteria	Process block (3 items)	Phase-change vest: material hardness after activation (if doesn't solidify, material is degraded; check for tears or leaks). Cooling towels: mold, odor, material breakdown. Cooling neck wraps: crystal degradation - shake the wrap; if it doesn't activate when squeezed, replace it.	
Scenario	3 HVAC heat scenarios	Storyline sequence	Scenario A: residential attic job, 2-hour exposure, August, 140°F estimated - phase-change vest required. Scenario B: rooftop RTU service, 95°F ambient, 1-hour, shade available - cooling neck wrap and towel sufficient. Scenario C: boiler room inspection, 110°F, 30-minute job - phase-change vest required, pre-activated before entry.	
Reflection	Hottest job recall	Reflection block (unscored)	'Think about your hottest HVAC job. What was the environment? What did you do to manage the heat? What would you add now?'	
KC	3 questions	Knowledge check	PPE selection for given heat scenario, phase-change activation, inspection failure ID	
	Selection criteria;			

Summary	inspection checklist; activation requirements	Text block		
Resource	Heat Stress PPE Quick Reference Card	Downloadable PDF	Environment → PPE selection guide; inspection checklist; activation guide - laminated-card format	
Module KC	5 questions	Knowledge check (70%+)	Cooling PPE identification, selection by scenario, phase-change activation, inspection criteria	
Badge	Heat Shield	Statement block	Badge awarded on passing	

Capstone: PPE Scenario Challenge

Time: 15 minutes | Bloom's: Apply / Analyze | Badge: JHA Pro

The learner acts as the technician - not a student. No new content. This is a performance task using everything from the course including all PPE additions from this revision.

The Scenario:

Kevin (new HVAC tech) arrives at a commercial building for a full-day service call. Five work zones: rooftop condenser service on a flat commercial roof; electrical panel diagnostic on a 277V system with PPE Category 2 arc flash label; refrigerant recovery on a rooftop unit using an unlabeled cylinder found in the mechanical room; attic ductwork inspection in a pre-1980 residential section; outdoor work in 98°F heat. Kevin has his tool bag. The question is whether he has the right PPE for each zone.

Phase	Name	Activity	Time
Phase 1	Hazard Identification	Learner shown building cross-section with 5 work zones. Identify primary hazard category in each zone. Minimum 4/5 correct to advance. Missed zones flagged with explanation.	4 min
Phase 2	PPE Selection	For each of the 5 zones, select the complete PPE ensemble including ★ hard hat, ★ steel-toed boots, ★ safety vest, and ★ cut-resistant gloves where applicable. Selections must be internally consistent — wrong cartridge with half-mask APR triggers a conflict flag. Missing any required item triggers a flag.	6 min
Phase 3	Inspection Decision	3 pieces of PPE shown with simulated inspection results. Learner decides: approve or remove from service? Abraded harness leg strap (remove). Cracked respirator facepiece (remove). Degraded phase-change vest material (remove). Approving any item triggers consequence explanation.	3 min
Debrief	Capstone Closing	Darius 60-second closing message: 'You made it through the hardest part - knowing what to look for before the job starts. The next part is harder. It's doing it when you're running late and the dispatcher is calling. That's what Part 2 is for.' Score displayed. JHA Pro badge awarded.	2 min

Final Assessment

Time: ~15 minutes | Bloom's: Apply / Analyze | Pass: 70%

20 questions, randomized from a 44-item bank. Open-reference - learners may use their downloaded field resources. 2 attempts. Third attempt requires supervisor notification.

Module	Items in Bank	Drawn for Exam	Note
★ Module 1 - Foundation (★ revised)	10	3	★ Includes hard hat, boots, vest, safety glasses questions
Module 2 - Electrical	8	4	★ Includes hard hat + leather boots in arc flash context
★ Module 3 - Refrigerant (★ revised)	8	4	★ Includes cut-resistant glove questions
Module 4 - Respiratory	8	4	No changes
★ Module 5 - Fall Protection	6	3	No changes
Module 6 - Heat Stress	4	2	No changes
★ Total	44	20	Minimum 40% at Bloom's Apply or above

Downloadable Resource Library

Every module delivers at least one downloadable field resource. All are designed in print-ready laminated-card format. Items marked ★ are new or revised in Version 2.0.

Resource	Module	Contents
★ ★ General Site PPE Inspection Card	**Module 1**	Hard hat (shell, suspension, date stamp), steel-toed boots (toe cap, sole, chemical contamination), safety vest (tape integrity, fasteners, tears), safety glasses (scratches, frame cracks, ANSI marking)
Label Literacy Reference Card	Module 1	Arc flash label anatomy, SDS Section 8 guide, GHS pictogram chart
★ ★ Arc Flash PPE Inspection & Donning Checklist	**Module 2**	★ Updated to include arc-rated hard hat and leather boots inspection criteria alongside AR clothing, face shield, and rubber insulating gloves
Arc Flash PPE Quick Reference (NFPA 70E)	Module 2	PPE Categories 1–4 with all required items and minimum arc ratings
★ ★ Glove Selection Card for HVAC	**Module 3**	★ Updated to include cut-resistant gloves (ANSI A3–A4+ for sheet metal/duct/copper work) alongside butyl rubber, neoprene, and nitrile. Includes non-substitution rule.
Respirator Selection Guide	Module 4	Hazard → respirator type → cartridge color reference card; APF values
Fall Protection Pre-Task Checklist	Module 5	Harness ABCDE inspection, anchor confirmation, rescue plan confirmation
Heat Stress PPE Quick Reference Card	Module 6	Environment → PPE selection; phase-change vest activation guide; inspection checklist
30-Day PPE Commitment Card	Final Exam	Learner selects 3 specific PPE behaviors to adopt; signs; gives to supervisor. Kirkpatrick L3 instrument.

Badge Progression

Badge	Earned By	Module
Safety Mindset	Complete Course Introduction	Intro - all general site PPE introduced in pre-assessment
Arc Flash Guardian	Pass Module 2 KC at 70%+	Module 2 - ★ arc-rated hard hat and leather boots included
Refrigerant Ready	Pass Module 3 KC at 70%+	Module 3 - ★ cut-resistant gloves included
Clean Air Certified	Pass Module 4 KC at 70%+	Module 4 - no changes
Heights Defender	Pass Module 5 KC at 70%+	Module 5 - no changes
Heat Shield	Pass Module 6 KC at 70%+	Module 6 - no changes
JHA Pro	Complete Capstone	Capstone - ★ all PPE additions tested in multi-hazard scenario
Come Home Safe - Foundation	Pass Final Assessment at 70%+	Final Exam - ★ all PPE additions represented in question bank

Version 2.0 PPE Coverage — Complete Inventory

Hard Hat: M1 (general inspection, all jobs), M2 (arc-rated hard hat in arc flash PPE ensemble, inspection criteria, What's Wrong Here? violation). Steel-Toed / Leather Work Boots: M1 (general inspection, all jobs), M2 (leather boots in arc flash PPE ensemble, inspection criteria, What's Wrong Here? violation). High-Visibility Safety Vest: M1 (general site PPE, inspection). Cut-Resistant Gloves: M3 (glove selection, ANSI cut levels, HVAC tasks, non-substitution rule, drag-and-drop scenario, module KC, capstone). Safety Glasses: M1 (general site PPE, inspection) — already referenced in M3/M4. Arc-Rated PPE: M2 (full coverage). Chemical PPE: M3 (full coverage). Respirators: M4 (full coverage). PFAS/Fall Harness: M5 (full coverage). Cooling PPE: M6 (full coverage).