

Selecting the Right Gear for Head-to-Toe Safety

White Paper

Introduction

Honeywell Safety and Productivity Solutions is the world's largest personal protective equipment (PPE) provider. From hard hats to safety footwear, many workers utilize Honeywell solutions for head-to-toe safety.

While any work environment can pose potential safety hazards, even veteran workers facing the extraordinary experience of a disaster cleanup effort may encounter new and different risks. Although the catastrophic event itself may have passed and the affected area approved for re-entry, the worksite itself likely, literally, remains a disaster area.

Disaster site dangers, according to the Centers for Disease Control and Prevention (CDC), “include carbon monoxide poisoning, musculoskeletal hazards, heavy equipment extreme heat and cold, unstable structures, hazardous materials, fire, confined spaces, worker fatigue, and respiratory hazards.”

Workers are advised to refer to proper governmental regulatory and corporate authorities for specific directions and mandates on work rules and procedures — as well as to employ best practices in their selection and use of personal protective equipment in their continuing support of a worksite-wide culture of safety.

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Centers for Disease Control and Prevention

Head Protection

Head-to-toe protection starts at the top. Entering a damaged structure exposes workers to a variety of overhead risks including flying or falling objects, power lines, equipment, tools, and similar hazards. Choosing the right hard hat is key to effective head protection. Hard hat impact protection is divided into two categories: Type I and Type II. Type I hard hats are designed to reduce the force of impact from a blow to the top of the head (e.g. an object falling from above the worker). Type II hard hats are designed to reduce the effect of the lateral force exerted on the head.

The proper and consistent use of a hard hat is vital to user safety. Lightweight high-impact materials and a snug and comfortable fit are essential. A good quality suspension (the support frame) within the hard hat is important. The more suspension points in the hard hat, the greater the comfort and the more energy from an impact that can be attenuated, or spread over the hat.

Depending on the work task, compatibility with other PPE and accessories such as liners, face shields, and hearing protection, might be required. Regardless of type, however, the selected head protection should conform with the Canadian Standards Association (CSA) 94.1-15 standard.

- ✓ The [Honeywell North Zone Hard Hat](#) sets a new standard for lightweight, day-long hard hat comfort all day long. Features include a modern shell combined with a patented suspension design with multiple adjustment points for size, height and snugness; and are easily removable and replaceable.
- ✓ In addition to superior protection, comfort, and fit, the new [Honeywell North Force™](#) hard hat features an innovative shell design providing back-of-head protection without constricting the range of motion protection. The extended shell provides 24% more back-of-head protection than standard Type I hard hats to protect workers from serious head injuries due to slips on slick surfaces.

Eye and Face Protection

“Struck by” injuries encompass all areas of the body but, from an injury perspective, some of the most serious relate to the eyes, face, and head. Where eye safety hazards exist, it is essential to provide protective eyewear that is compliant with CSA, UL, and other applicable protection standards that cover protective eyeglasses, goggles, and visors.

In the aftermath of a disaster, work activity in a dirty, damaged structure can cause particles such as dust and soot to become airborne — and a safety risk to workers’ eyes.

Sealed eyewear is ideal for protection against airborne debris as well as from impact, the sun, and the wind. Sealed eyewear provides protection for wearers of prescription glasses. Models with extended wraparound frames improve protection and peripheral vision. Flexible width sizes, an adjustable nose bridge, and ratcheting temple hinges that enable the wearer to customize the fit and lens angle increase comfort and promote usage. Anti-fog lenses help preserve vision when exertion, heat, and humidity exist.

- ✓ [Uvex Livewire sealed eyewear](#) is engineered for an extreme environment. Can be worn with temples or headband for a close, sealed fit to protect against dirt, dust, debris, the wind, and the sun as well as high heat and humidity. Livewire sealed eyewear also features 10X longer-lasting anti-fog performance.
- ✓ [Uvex Seismic sealed eyewear](#) can be worn with temples or headband for protection against impact, the sun, the wind, and debris. Ideal for high-particulate environments such as grinding, chipping and sanding.
- ✓ [Uvex Tirade sealed eyewear](#) offers protection in high particulate environments where dust, dirt and debris present the risk of eye injury. Designed with a large unilens for a wide field of unobstructed peripheral vision. Also available with temples or headband.
- ✓ [Uvex Stealth goggle](#) features a low profile design for chemical splash and impact, toric lens for superior optics and peripheral vision, and a quick adjust headband.
- ✓ [Uvex Stealth over-the-glass \(OTG\) goggle](#) offers premier performance, comfort, and adjustability features. Ideal for impact, dust, chemical splash, and UV and welding radiation. Fits comfortably over most prescription eyewear.
- ✓ [Uvex V-Maxx over-the-glass \(OTG\) goggle](#) fits a wide variety of workers and can be worn over prescription eyewear or with most half-mask respirators.
- ✓ [Uvex Strategy goggle](#) features innovative, face-hugging material and a rugged design that withstands the harshest environments.

Demolition or cleanup work involving steel cutting and concrete sawing increases the risk of eye injury from flying particles or hot liquid droplets. In these environments, workers will need protection in the form of full face visors. Heavy mechanical work will require polycarbonate visors, chemical contact will require acetate or propionate visors, and electrical work will require polycarbonate visors, and welding tasks will require a polycarbonate visor with an Infrared (IR/UV) level 3.0 or 5.0 lens.

- ✓ [The Honeywell Forestry Kit](#) combines a hard hat and ear protection earmuffs with a metal mesh face screen to provide head, eye, face, and hearing protection with the ultimate impact shield from flying chips and debris.
- ✓ The installation of on-site emergency eyewash stations can help provide an immediate remedy for eye injuries if an accident does occur. The portable [Fendall Flash Flood](#) station offers immediate, hands-free eye flushing — and delivers a saline solution for three minutes.

Respiratory Protection

Physical injuries are not the only hazard in a cleanup effort. It is important to protect the lungs because various gasses, toxic chemicals, fumes, and particles can remain airborne long after a catastrophic event has passed or a structural fire is extinguished. Those working on clean-up, refurbishment, and construction teams are strongly advised to wear respiratory protection.

Asbestos and silica are leading respiratory hazards and cause of ill health on the job site, often inhaled as dust during demolition and refurbishment activities. Respiratory protection is also vital when drilling, painting, and cutting concrete or working with sand and concrete.

Ways to reduce inhalation risks can include changing working practices, for example by adding water when cutting concrete to reduce dust. Single use, re-usable face masks, half-face or full-face respirators or ventilated hoods are available to prevent dust inhalation.

- ✓ The economical, elastomeric [Honeywell North 5500 Series Half Mask](#) features a wide contoured sealing area and great fit. The low “dead air” space limits re-breathing of exhaled air for increase comfort and worker productivity. Latex free straps stretch and move with the worker while providing optimum support.
- ✓ The [Honeywell North 7700 Series Half Mask](#) is made from 100% medical grade silicone, and the wide sealing area provides exceptional fit and comfort. Its cradle suspension features woven straps that provide for maximum mobility without sacrificing support.

- ✓ [Honeywell North RU6500 Full Facepiece Mask](#) is an economical silicone full facepiece that provides all day comfort.
- ✓ The value-priced [Honeywell North 5400 Series Full Facepiece Mask](#) features include a nose cup and wide field of vision. The 5400 easily converts to a PAPR or Supplied Air Respirator.
- ✓ The [Honeywell North 7600 Series Full Facepiece](#) Mask features a double flange sealing area made from medical grade silicone for a comfortable fit and optimum facepiece to face seal. Other features include a wide field of vision, a five strap harness, and chin support. It easily converts to PAPR and Supplied Air.
- ✓ [N Series Cartridges & Filters](#), for use with 5500 and 7700 Series half masks, and 5400 and 7600 Series full facepieces, feature a low profile with a curved top that will not catch on pipes or other objects. User seal checks are easy to perform, even with gas and vapor cartridges.

Gas Monitoring

A burnt-out building structure and its contents can produce a lethal combination of chemicals and carcinogens that can remain long after a fire is extinguished. Worker safety concerns include the availability of sufficient Oxygen (O₂) as well as the lingering presence of dangerous Combustibles (LEL) and toxic gasses such as Carbon Monoxide (CO), Hydrogen Sulfide (H₂S) and Hydrogen Cyanide (HCN).

Portable gas detectors can alert wearers of these dangers at worksites, in confined spaces, and when performing spot leak testing. Single-gas detectors offer low-cost protection and rugged reliability, with options like extended battery operation. Multi-gas detectors combine a comprehensive range of features and flexible options. A fleet of gas detectors can be managed easily by docking/charging stations designed to simplify bump tests, calibration, charging and records-keeping.

For advanced protection, an area-wide wireless gas monitoring scheme can be deployed rapidly, using a command-control center established to collect and transmit data from wireless multi-sensor monitors worn by first responders or installed along the perimeter of the defined area.

Plume modeling software can be added as well so that the wind speed and, in the case of a fire, its direction, can be monitored. The advantage of the wireless system is that information is captured in real time and is available to share across an entire enterprise, or between first responder teams.

The instructions, cautions, and warnings of using portable gas monitors are governed by Canadian Standards Association (CSA) standards including C22.2 NO. 152-M1984 (R2001), “Combustible Gas Detection,” the CSA standard that covers the details of construction, performance, and test procedures for portable instruments used to detect or measure combustible gasses, and protocols issued by the International Safety Equipment Association (ISEA) related to calibration and bump testing the instruments.

- ✓ The [BW Clip Series](#) of single-gas detectors provides up to three years maintenance-free operation. Turn on the device and it will run continuously with no need for sensor and battery replacement or battery charging. Reliability is outstanding, and there is no downtime.
- ✓ The [GasAlertMicroClip](#) is the world’s most popular multi-gas portable detector, delivering long runtime (an entire shift) and reliability — along with small size, low cost, and a superior user experience.
- ✓ The [AreaRAE](#) provides real-time wireless measurements for a range of hazardous gas threats. With a PID sensor for VOCs, an LEL sensor for combustible gasses, an oxygen sensor, and two user-selectable sensors for toxic gasses such as chlorine or hydrogen sulfide, it can run on battery, AC or solar power.

Hand Protection

As the chief points of contact in potentially hazardous situations or with dangerous substances, a worker’s hands deserve special safety consideration. Unfortunately, hand injuries such as cuts and lacerations continue to be all-too-common.

The cut resistance of a glove is mainly a function of the fiber composition, and blend of fibers in the shell of the glove. For various handling tasks, protection can be increased by using fiber technologies like Honeywell Spectra® Fiber, a High-Performance Polyethylene (HPPE), aramid fibers like Kevlar®, or blend of cut-resistant fibers with stainless steel or fiberglass to achieve the cut level required.

Select glove materials according to the specific protection required. Chemicals, and even concrete, can pose a major threat to hands. Coating

polymers provide protection in different degrees; a chemical resistance chart should always be referred to when selecting the best glove to wear. If permeation and degradation information is not provided, please consult with the manufacturer.

Comfort, dexterity, grip, and breathability are important attributes of work gloves. Gloves that are the wrong size, uncomfortable, or inappropriate for the task are likely to be quickly discarded by the wearer — along with the protection they were intended to provide.

In Canada, the prevailing standard for hand protection selection is ANSI ASTM F1790 (US) or CE EN388 (Europe).

- ✓ [KV224D GuardDog® Kevlar®](#) inner shell with premium split leather/heavy duty canvas exterior, provides ANSI cut level 3 protection. Kevlar® aramid fiber will not support a flame and provides low-level heat resistance, depending on environmental factors.
- ✓ [NFCRTF NorthFlex CRT™ Kevlar®](#) blend seamless knit shell, with nitrile palm dipped coating. Nitrile offers higher heat resistance than natural rubber coatings. ANSI cut level 4 cut protection.
- ✓ [NFD18FRG NorthFlex FRGrip™ Plus 5 Glove](#) is composed entirely of inherently flame-retardant and heat-resistant and will not degrade or melt when exposed to high heat levels. Kevlar® blend seamless knit shell with a bi-polymer dipped coating. ANSI cut level 4, EN388 cut level 5. CAN/CGSB-155.20-2000 Workwear for Protection against Hydrocarbon Flash Fire — passes, no melting or dripping.

Foot Protection

Disaster cleanup sites can present workers with surfaces that are rough and uneven; muddy or slick with water, chemicals or liquids; or otherwise hazardous. The safety risks to a worker’s feet can include impact, crush, puncture, or slipping injuries.

The proper safety footwear can guard against these hazards while providing maximum support. Select safety footwear featuring a protective toe cap, steel midsole, and ankle protection to protect from falling debris or puncture risks; enhanced slip resistance on the sole; a self-cleaning tread design; and high flexibility and durability. Footwear uppers should be constructed of breathable, water-resistant material. Comfort is essential for helping to prevent overall fatigue for the wearer.

- ✓ [Honeywell Servus XTP® \(Xtra Traction Performance\)](#) footwear is engineered with steel toe protection, a chemical resistance formulation, 100% waterproof and outsole compounds are formulated for long wear and slip resistance.

Footwear should be tested to CSA Z195-14 standards.

Hearing Protection

Most worksites are enveloped by the sounds of working tools, equipment, and heavy machinery — and many present the risk of permanent, noise-induced-hearing-loss. Effective hearing protection reduces the level of sound exposure to permissible limits while allowing users to maintain real-time personal communication and situational awareness for their personal efficiency and safety.

There are many options for hearing protection. Selection factors include noise exposure and desired protection levels, product type (earplug or earmuff), style (single/multiple uses, banded, etc.) and other product features (size, corded, sound management, etc.). Training and testing help users ensure the proper fit of the hearing protector and the desired level of protection. Regardless of the type, the chosen hearing protection should be compliant with CSA Z1007 for hearing conservation.

Earplugs require their insertion into the ear canal. In a dirty workspace, ensure the cleanliness of the earplug with the use of disposables or earplugs with stems.

- ✓ The soft foam with the dimpled tip of the new [Honeywell Howard Leight TrustFit™ Pod push-in foam earplug](#) collapses to be easily and gently pushed into the ear without the need to roll down — to reduce hygiene concerns and deliver day-long comfort. The earplug's ergonomically contoured paddle fits naturally between the finger and thumb, even when wearing lightweight work gloves.

Fall Protection

Falls from height represent the leading risk factor for serious injury or death at the worksite. To reduce the risk, consider the following series of options. First, if possible, avoid work at height. Many accidents occur at low levels where the risk of a fall has not been considered.

Secondly, prevent falls with the use of collective fall protection. Thirdly, specify Personal Fall Protection Equipment (PFPE) for individuals working at height to reduce the potential (restraint) and to reduce the effects of a fall (fall arrest).

Selecting the right type of fall arrest equipment is vital for all three components of the PFPE system: Anchor point (permanent or temporary), body wear (harness, restraint belts) and connecting device (lanyards, rope grabs). When specifying PFPE, consider the user, the environment, and specific application. Proper training, inspections, and maintenance are always required. A rescue plan and qualified individuals should be in place at the worksite.

- ✓ [Honeywell Miller AirCore Tower Climbing Harnesses](#) provide the ultimate in performance, comfort, and durability even when used in the most challenging climbing environments. Designed for workers climbing cell phone, TV, radio and utility towers while building/decommissioning towers, changing out transmission lines/antennas, or installing/replacing lights.
- ✓ The new economical [Honeywell Miller Titan™ II harnesses](#) offers enhanced adjustability, improved comfort and increased worksite safety. Designed for the general construction, manufacturing, and oil & gas (refinery) use.
- ✓ The cost-effective [Honeywell Miller TurboLite™ Personal Fall Limiters](#) makes shock-absorbing lanyards obsolete. Workers will no longer need to “switch-out” equipment to maintain a safe fall distance.
- ✓ The new patent-pending [Honeywell Miller Twin Turbo™ G2 Connector and patented D-Ring Connector](#) easily adapts two (2) lightweight Miller TurboLite™ or two (2) Miller Turbo T-BAK™ Personal Fall Limiters (PFLs) for continuous 100% tie-off fall protection.

- ✓ The [Honeywell Hybrid Energy-Absorbing Lanyard](#) is the only lanyard that can be used by workers across weight classes while still being CSA compliant. The Hybrid lanyard combines CSA E4 and E6 user weight capacities, eliminating the confusion of which to use and the risks of using the wrong one.

Electrical Safety

Structurally-damaged facilities pose multiple varieties of electrical hazards that require a full array of linemen PPE. Utility and electrical workers must also protect themselves by wearing rubber insulating gloves with leather protectors, and head protection including face shields and hard hats. Temporary grounding equipment, voltage detectors, and insulating sticks are essential tools for the work zone.

The first order of business is to remove occupants and cut electrical power to the severely affected area, allowing the first responder cleanup team to sweep through and begin the assembly of the new infrastructure. Power and gas services won't be re-established until all cleanup and ground restoration work has been completed.

Even when electrical equipment is turned off, however, it can become temporarily re-energized, for example during an electrical storm. Qualified workers near energized equipment or downed power lines must wear arc flash protective clothing, rubber insulating gloves, hard hats and face shields. National Safety Standards require employers to train employees regarding selection, use, and maintenance of their electrical PPE. Dielectric boots and overshoes provide essential safety protection against step potential. These overshoes and overboots have been tested to the electrical requirements of ASTM F1117.

Worksite Safety

- ✓ In case an accident does occur, the availability of on-site CSA-compliant [Honeywell First Aid Kits](#) can assist workers with the treatment of a wide variety of worksite-related injuries.
- ✓ The presence of moving vehicles and equipment in and around disaster cleanup sites can pose a myriad of hazards for workers and others. Accessories such as [barricade tape, cones, flags, and traffic vests](#) can provide added visibility to area hazards and increase safety in the management of worksite traffic.

Product Reference

■ Head Protection

- North Zone Hard Hat: http://www.honeywellsafety.com/Products/Head_Protection/North_Zone_Hard_Hat.aspx
- North Force hard hat: <http://www.honeywellsafety.com/NorthForce>

■ Eye and Face Protection

- Uvex Livewire sealed eyewear: http://www.honeywellsafety.com/Products/Eye_and_Face_Protection/Uvex_Livewire_Sealed_Eyewear.aspx
- Uvex Seismic sealed eyewear: http://www.honeywellsafety.com/Products/Eye_and_Face_Protection/Uvex_Seismic_Sealed_Eyewear.aspx
- Uvex Tirade sealed eyewear: http://www.honeywellsafety.com/Products/Eye_and_Face_Protection/Uvex_Tirade_Sealed_Eyewear.aspx
- Uvex Stealth sealed eyewear: http://www.honeywellsafety.com/Products/Eye_and_Face_Protection/Uvex_Stealth.aspx
- Uvex Stealth over-the-glass (OTG) goggle: http://www.honeywellsafety.com/Products/Eye_and_Face_Protection/Uvex_Stealth_OTG.aspx
- Uvex V-Maxx over-the-glass (OTG) goggle: http://www.honeywellsafety.com/Products/Eye_and_Face_Protection/Uvex_V-Maxx_Goggle.aspx
- Uvex Strategy economical over-the-glass (OTG) goggle: http://www.honeywellsafety.com/Products/Eye_and_Face_Protection/Uvex_Strategy.aspx
- Honeywell Forestry eye and face protection kit: http://www.honeywellsafety.com/Products/Eye_and_Face_Protection/Forestry_and_Industrial_Kits.aspx

- Honeywell Fendall Flash Flood portable emergency eyewash station: http://www.honeywellsafety.com/Products/Eye_and_Face_Protection/Fendall_Flash_Flood.aspx

■ Respiratory Protection

- North 5500 Series Half Mask [http://www.honeywellsafety.com/Products/Respiratory_Protection/5500_Series_Half_Mask_\(North_Brand\).aspx?site=/usa&LangType=1033](http://www.honeywellsafety.com/Products/Respiratory_Protection/5500_Series_Half_Mask_(North_Brand).aspx?site=/usa&LangType=1033)
- North 7700 Series Half Mask [http://www.honeywellsafety.com/Products/Respiratory_Protection/7700_Series_Half_Mask_\(AUS\).aspx](http://www.honeywellsafety.com/Products/Respiratory_Protection/7700_Series_Half_Mask_(AUS).aspx)
- North RU6500 Full Facepiece http://www.honeywellsafety.com/Products/Respiratory_Protection/RU6500_Full_Facepiece.aspx?site=/usa
- 5400 Series Full Facepiece Mask [http://www.honeywellsafety.com/Products/Respiratory_Protection/5400_Series_Full_Facepiece_\(North_Brand\).aspx](http://www.honeywellsafety.com/Products/Respiratory_Protection/5400_Series_Full_Facepiece_(North_Brand).aspx)
- Honeywell North 7600 Series Full Facepiece Mask [http://www.honeywellsafety.com/Products/Respiratory_Protection/7600_Series_Full_Facepiece_\(North_Brand\).aspx](http://www.honeywellsafety.com/Products/Respiratory_Protection/7600_Series_Full_Facepiece_(North_Brand).aspx)
- N Series Cartridges & Filters for 5500, 7700 Series half masks; and 5400, 7600 full facepieces http://www.honeywellsafety.com/Products/Respiratory_Protection/N_Series_Cartridges_Filters.aspx

■ Gas Monitoring

- BW Clip Series single-gas detector: <http://www.honeywellanalytics.com/en-au/products/BW-Clip>
- GasAlertMicroClip multi-gas portable detector: <http://www.honeywellanalytics.com/en-au/products/GasAlertMicroClip-Series>
- AreaRAE wireless gas monitor: <http://www.raesystems.com/products/arearae-steel>

■ Hand Protection

- KV224D GuardDog® Kevlar® <http://www.honeywellsafety.com/Pages/Product.aspx?id=1291>
- NFCRTF NorthFlex CRT™ Kevlar® blend seamless knit shell: http://www.honeywellsafety.com/Products/Gloves/NorthFlex_Nitri_Task_KL%E2%84%A2_-_NFKL13.aspx
- NFD18FRG NorthFlex FRGrip™ Plus 5 Glove http://www.honeywellsafety.com/Products/Gloves/NorthFlex_-_FRGrip%E2%84%A2_Plus_5.aspx

■ Foot Protection

- Servus XTP® (Xtra Traction Performance) footwear: http://www.honeywellsafety.com/Products/Footwear/XTP%E2%84%A2_PVC_Footwear.aspx

■ Hearing Protection

- Honeywell Howard Leight TrustFit™ Pod push-in foam earplug: <http://www.honeywellsafety.com/TrustFit>

■ Fall Protection

- Honeywell Miller AirCore Tower Climbing Harnesses: http://www.honeywellsafety.com/Products/Fall_Protection/Miller_AirCore_Tower_Climbing_Harnesses.aspx
- The new economical Honeywell Miller Titan™ II harnesses: <https://www.millerfallprotection.com/en/about-miller/titan-ii-harnesses-and-lanyards>
- The cost-effective Honeywell Miller TurboLite™ Personal Fall Limiters <https://www.millerfallprotection.com/en/products/connecting%20devices/miller-turbolite-personal-fall-limiters>
- The new patent-pending Honeywell Miller Twin Turbo™ G2 Connector <http://www.millerfallprotection.com/en/products/connecting%20devices/miller-twin-turbo-fall-protection-systems-with-g2-connector> and patented D-Ring Connector <https://www.millerfallprotection.com/en/products/connecting%20devices/twin-turbo-fall-protection-systems-d-ring>
- The Honeywell Hybrid Energy-Absorbing Lanyard http://www.honeywellsafety.com/Products/Fall_Protection/Hybrid_Energy-Absorbing_Lanyards.aspx?site=/ca

■ Electrical Safety

- ASTM F1117 Dielectric Footwear <http://www.salisburybyhoneywell.com/en/utility/dielectric-footwear>
- Life Front Hood <http://www.salisburybyhoneywell.com/en/press-room/featured-products/lfh>

■ Worksite Safety

- Honeywell First Aid Kits: http://www.honeywellsafety.com/USA/Product_Catalog/First_Aid.aspx
- Honeywell traffic safety accessories: http://www.honeywellsafety.com/USA/Product_Catalog/Traffic_Safety.aspx

For More Information

USA:

<http://www.honeywellsafety.com>

Canada (English):

www.honeywellsafety.com/CA/Home.aspx

Canada (French):

www.honeywellsafety.com/CA/Home.aspx?LangType=3084

Honeywell Safety and Productivity Solutions

900 Douglas Pike
Smithfield, RI 02917
1.800.430.5490
informationsp@honeywell.com

6303 Roper Rd NW
Edmonton, AB T6B 3G6
1.888.212.7233
informationsp@honeywell.com

10550 Boulevard Parkway
Anjou, QC H1J2K4
1.888.212.7233
informationsp@honeywell.com

www.honeywell.com