

Footwear Innovations



ARMOUR FLEX® /ARMOUR FLEX+®

This technology is a multi-layer textile composite made from a high tenacity yarn. The woven fabric undergoes different treatments to reach the desired level of hardness while maintaining its flexibility. The ARMOUR-FLEX® textile insole can be sewn directly onto the upper and offers a greater area of protection of the bottom of the foot. ARMOUR-FLEX® will keep your feet warmer in winter because, unlike steel, it will not conduct heat away from your foot. ARMOUR-FLEX® provides the technology that you need to keep your feet protected, while still allowing your foot to bend. ARMOUR-FLEX+ uses a slightly heavier and stiffer material than regular ARMOUR-FLEX® construction and offers a higher puncture resistance.



DURATOE®

DURATOE® is a molded toe cap applied to the outside of the work boot to increase the life of the toe area of the boot. The toe cap can be made of a variety of materials that may look or have properties similar to plastics and other artificial components. They will be quite flexible and extremely durable, ensuring that the toes of your work boots withstand hard wearing.



FRESHTECH®

FRESHTECH® is a safe and invisible antimicrobial treatment that is applied to our footwear and garment products. In garments the treatment inhibits the growth of bacteria that cause odor. In footwear the treatment inhibits the growth of fungi, mold, and mildew, in addition to odor causing bacteria. The FRESHTECH® treatment stops bacteria and fungi from reproducing, which creates a safe and comfortable product. We ensure the effectiveness and durability of FRESHTECH® through standard testing.



HYPER-DRI® FOOTWEAR

Waterproof/Breathable: Designed with a seam sealed, bootie shaped, waterproof and breathable membrane providing an impenetrable barrier to the elements while allowing body generated moisture to escape. The membrane used must meet our high waterproof and water vapour transmission testing standards. Footwear is water tank tested to 50 000 foot flexes to simulate extreme conditions.



QUAD-COMFORT®

The QUAD COMFORT® footwear technology consists of a minimum of 4 comfort components, which address shock absorption, weight distribution, cushioning & pressure displacement and occasionally outsole performance. The construction of the footwear depends on their end use and the requirements of the footwear. The four components are integrated between the footbed or insole through to the bottom of the outsole. If a component provides a significant and functionally noticeable advantage, it may also comprise a feature that is incorporated into the

upper of the footwear. Shock absorption is addressed by adding additional cushioning in the heel of the shoe as it is the first areas of contact when walking. Another component of comfort can be added under the ball of the foot to help distribute weight, alleviate pressure points and provide greater energy return. For cushioning and pressure displacement, our footwear uses lightweight, flexible functional midsoles that can be made up of many densities of cushioning. Lastly, outsoles are functionally engineered to provide the utmost in comfort, shock absorption and flexibility.

Other outsole materials may also be considered such as leather if they truly provide a comfort component or benefit to the end user. Our TARANTULA ANTI-SLIP® outsoles can be used for QUAD COMFORT® footwear to provide a high degree of slip resistance to reduce the likelihood of a slip or fall while still maintaining QUAD COMFORT features in their structure.



TARANTULA ANTI-SLIP®

Our TARANTULA ANTI-SLIP® outsoles provide the ultimate in slip protection by reducing the likelihood that you'll slip or fall on wet and/or greasy surfaces. To achieve this high performance, the outsoles use a unique tread pattern and advanced compound to increase the coefficient of friction. Our anti-slip outsoles provide incredible grip to resist slipping on most surfaces including wet, soapy, oily and greasy surfaces. To achieve this high performance, the footwear has a unique tread pattern and soft rubber compound to increase the coefficient of friction. Many other shoe outsoles hydroplane on wet surfaces, resulting in poor traction for the wearer. TARANTULA ANTI-SLIP® outsoles, however, push liquids to the outside using unique micro channels, instead of keeping liquids underfoot.

DISCLAIMER: This footwear has been tested for wet and dry conditions. It has not been tested for use on any type of ice.



ICEFX®

ICEFX® has an innovative tread design to provide greater surface contact in the heel strike zone and forefoot to achieve an anti-slip outsole. The outsole also uses a softer, more flexible rubber compound that does not harden in the cold and incorporates gripping pods to provide enhanced traction. ICEFX® may also utilize other compounds or materials in the outsole to help achieve slip resistance on ice. Constant research is explored to search for new and better materials to provide a "Safer Way to Walk on Ice".

DISCLAIMER: ICEFX® provides enhanced traction on ice but does not guarantee slips will not occur under any circumstances. Care should always be taken when walking on ice.

Footwear Innovations



T-MAX®

The warmest, lightest hypo-allergenic insulation on the market. It regulates body temperature by allowing moisture to move away from the body, keeping the body dry and comfortable.



VIBRAM®

Vibram soles are an expert integration of functional design and high performance compounds. Vibram ensures that demanding workers have reliable and safe products for their professional activities, in any situation, in any weather condition or environment. Grip, stability, heat and oil resistance, electrical

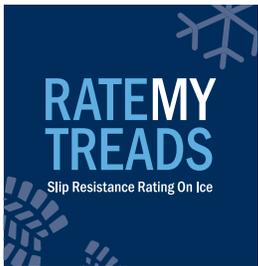
hazard rated, flexibility: a boot powered by Vibram improves worker efficiency, performance, reliability and comfort.



VIBRAM FIRE & ICE®

The Vibram® Fire & Ice™ compound has been studied for extreme applications and maintains its performance values in a wide range of temperatures (from -20°C to +250°C). The formulation satisfies both requirements for fire resistance from NFPA and the Ross cold flex at -23°C.

What Is Rate My Treads?



ratemytreads.com

The KITE Research Institute is the research arm of the Toronto Rehabilitation Institute at the University Health Network located in Toronto. KITE is home to WinterLab, which originally opened as part of the IDAPT (Intelligent Design for Adaptation, Participation and Technology) Centre for Rehabilitation.

KITE works with a broad range of clinicians, engineers, scientists, researchers, students and more to find practical solutions to common problems. We care about slips, trips and falls and their impact on a person's mobility and quality of life.

The researchers at KITE had a vision and a belief: we believe that choosing the right footwear can reduce and prevent unintentional slips and falls. The outcome? The world's only human oriented slip resistant testing method done in a real winter environment – our Maximum Achievable Angle (MAA) Test.

The Maximum Achievable Angle (MAA) Test - We Tip Till You Slip

Participants walk back and forth on an ice floor while we slowly increase the angle of the floor. We call our method the Maximum Achievable Angle Test or MAA.

OUR RATING SYSTEM

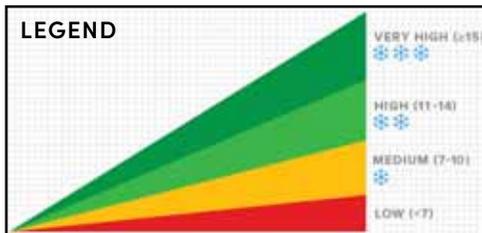
If footwear passes an angle of 7 degrees (which means it will have a score of 7), then it passes our MAA test and is on the list with one snowflake! We picked 7 as the minimum because it meets the accessibility guidelines in Ontario for a curb ramp.

If footwear has a score of 11 then it will get 2 snowflakes and if it reaches 15 or above, it will receive 3 snowflakes!

We test on both Cold Ice and Wet Ice to simulate different environments, from an icy parking lot to a slippery wet sidewalk. It is also important that you can walk up and down a ramp, so we test participants walking both uphill and downhill for this very reason.

To ensure maximum slip protection, we base our overall score for each footwear on the lowest MAA from the four testing conditions.

As mentioned above, the footwear was tested under two conditions (Cold Ice and Wet Ice). Those that passed both conditions received two checkmarks; however, there were some that performed well under one condition only, and they received a single checkmark.



Our top picks

(meeting our minimum slip resistance standard for icy conditions)

BRAND	NAME	PAGE SHOWN	RATINGS SCORE	MAA
Dakota	"8510" Arctic Grip Boots 5ANADK7-8510	8	☃☃☃	8
Timberland PRO	"BOONDOCK" Work Boots 89645	16	☃☃☃	2
ROYER	"AGILITY" Arctic Grip Boot 5727AG	21	☃☃☃	8
Dakota	"8907" IceFX Winter Boot 5ANFDKW0-8907	83	☃☃☃	8
Dakota	"8901" HD3 Transitional Boot 5ANFDKW7-8901	83	☃☃☃	12
Dakota	"8524" Syntrol Felt Pack Boot 5ANFDKW6-8524	84	☃☃☃	8
Dakota	"8527" Leather Felt pack Boot 5ANFDKW8-8527	84	☃☃☃	12
Helly Hansen	Felt Pack Winter Boot HHF146111	85	☃☃☃	10
Helly Hansen	Safety Winter Boot HHF186118	85	☃☃☃	11
Helly Hansen	Winter Work Boot HHF196119	86	☃☃☃	11
Dakota	Felt Pack Winter Boot 5BOFDK7-8520	120	☃☃☃	8
Dakota	"8905" Transitional Winter Boot 5BOFDK8-8905	120	☃☃☃	8

For a complete listing of all footwear reviewed go to - ratemytreads.com

Deciphering The Symbols



CSA Green Triangle

Indicates sole puncture protection with Grade 1 protective toecap which can withstand impacts of 125 joules (22.7 kg object falling from 56 cm above).



CSA White Rectangle with Orange Omega

Indicates soles that provide electric shock resistance. Intended to withstand 18,000 volts at 60Hz for one minute without disruptive discharge to ground; leakage current not exceeding 1mA.



CSA Yellow Rectangle

Indicates soles are static-dissipative.

Warning: This footwear should not be used where contact with live electrical conductors can occur.



CSA Blue Rectangle

Indicates Grade 1 protective toecap without sole puncture protection.



CSA Dark Grey Rectangle with White M

Indicates metatarsal protection. Note: Toe protection is required for all metatarsal protective footwear.

These boots are intended for industrial work environments where heavy objects can hurt the metatarsal region of the foot.

The Language of Footwear

ANSI

International standards organization that develops and publishes voluntary consensus technical standards for a range of materials.

Aerospace Lining

A breathable synthetic lining comprised of a mesh-like structure.

Anti-microbial

A chemical treatment applied to footwear linings which prevents microbe growth.

ATCP

Aluminum toe, composite plate.

Cement Construction

A shoe construction in which the upper of a shoe is cemented, rather than stitched, to the bottom of a shoe. Cement construction results in a lighter, more flexible shoe.

Contoured Footbed

An insole that molds to the shape of your foot.

Composite Plate

A safety, puncture resistant sole plate used in safety footwear in replacement of steel plates. A few varieties exist today, made of synthetic materials such as nylons, resins and also Kevlar.

CTCP

Composite toe, composite plate.

Dri-Tec

A generic term for breathable, moisture-wicking lining found in footwear.

Dual Density Midsole

A midsole that employs two different densities of cushioning foam.

ESR

Electrical shock resistance.

EVA

Ethylene Vinyl Acetate - A synthetic compound used for outsoles. EVA provides cushioning to the footbeds, midsoles, and is easily shaped by heat and pressure.

Footbed

Sometimes also referred to by customers as the insole. It is the foundation in footwear that rests under the foot and has a critical role in comfort.

Goodyear Welt Construction

A shoe construction in which the upper and sole of the shoe are stitched together, resulting in greater durability. The resulting seam is visible and runs around the outside of the shoe, where the upper and outsole meet.

Green Diamond Technology

Patented silica carbide crystals are embedded throughout the rubber outsole which are durable and long lasting traction on ice.

Heel Counter

Counters provide support and help the upper wrap around the foot.

Injection Molded Construction

A type of sole unit construction created by injecting material into the sole mold. Injection molded construction is an efficient way to mass-produce footwear.

Inseam

The hidden seam of a welted shoe holding together the welt, upper, lining and insole.

Metguard

A safety feature found in some boots which is comprised of a protective cap that covers the metatarsal area of the foot and protects against injury from impacts. Can be internal or external.

Moisture Wicking

Synthetic materials that have been developed specifically to channel perspiration away from the body.

Nubuck Leather

Nubuck is a type of leather with a soft, velvety surface and is far more durable than suede.

Oarprene

Rubber that is acid and oil resistant.

OrthoLite

OrthoLite insoles are made up of open-cell foam, allowing air to circulate around the foot, keeping it cooler inside the shoe. The open cell structure also moves moisture away from the foot, keeping it drier.

PU

Polyurethane; a type of man-made material.

PVC

Polyvinyl chloride. A semi-rigid plastic, often used in heel counters and outsoles for added support.

SD

Static Dissipating. The shoe dissipates static buildup on the body so as not to cause an arcing effect.

STSP

Steel toe, steel plate.

STCP

Steel toe, composite plate.

TPR

Thermo plastic rubber. A plastic material used by many manufacturers in the injection molding process.

TPU

Thermopolyurethane. Man made material used in footwear production on uppers, but also outsoles.

Upper

The part of the shoe that covers the top part of the foot, from heel to toe.

Welt

A strip of material sewn between the insole and the outsole to create greater durability.