SUSTAINABLE CONCRETE SOLUTIONS

SMART CONCRETE®

CONCRETE AND SUSTAINABLE CONSTRUCTION

The durability and longevity of a structure directly impacts the environmental footprint that structure creates. By using sustainable practices and materials that enhance the durability of our infrastructure, we are supporting a long-term initiative toward building better, longer lasting cities.

Concrete is the most used man-made material in the world, encapsulating a vast amount of our cities. Concrete is used so much because it is a durable and readily available product, which can also be recycled at the end of life.

KEY ATTRIBUTES OF SUSTAINABLE BUILDINGS INCLUDE:

- Consideration of sustainability aspects in all phases of building design, planning and construction
- Use of healthy, environmentally friendly, and efficient building systems, materials and products
- Use of constructions and systems which are easy to maintain and service
- Safeguarding of high functionality, flexibility and adaptability
- Ensuring the health and comfort of users, occupiers and visitors
- High aesthetic and urban design quality; high public acceptance

These attributes highlight the fact that every step of the construction process is equally responsible for creating a sustainable and resilient structure. This also stresses importance not just on the construction processes, but also the products and materials used to create the structure.

HOW KRYTON'S SMART CONCRETE SOLUTIONS HELP YOU CREATE RESILIENT STRUCTURES

Kryton International is the only company that can provide you with a full suite of integral solutions for concrete waterproofing and durability. With over 45 years in the industry our proven products have outlived their 25 year warranties.

- SAVE WEEKS ON THE CONSTRUCTION SCHEDULE
- REDUCE MAINTENANCE COSTS
- REDUCE ADDITIONAL EXCAVATION
- CONCRETE REMAINS RECYCLABLE
- ELIMINATE THE NEED FOR PETROLEUM BASED MEMBRANES
- MAXIMIZE THE LONGEVITY

SMART CONCRETE SOLUTIONS **TO HELP YOU MEET YOUR SUSTAINABILITY GOALS**

Kryton's Smart Concrete Solutions maximize the performance and durability of concrete structures so you can build with confidence. The application of our advanced technology helps your organization comply with sustainability guidelines identified in commonly used sustainability frameworks such as the Global Reporting Initiative and LEED.

KRYTON'S CONCRETE DURABILITY AND WATERPROOFING SOLUTIONS **PROTECT YOUR INVESTMENT AND THE ENVIRONMENT**

Krystol Waterproofing Products

- Safe for use with potable water and are certified to NSF/ANSI Standard 61: Drinking Water Components – Health Effects
- Krystol products contain no VOCs
- Eliminates the need for petroleum-based surface-applied membranes which can be harmful to the environment and are non-recyclable
- Less construction waste. Kryton's pulpable paper bags can be added to the concrete plant mixer or truck unopened, eliminating all packaging waste
- Concrete containing Krystol products can be recycled after demolition, unlike surface-applied membranes
- Eliminates additional excavation, labor and material resources required for surface-applied membranes
- Smart Concrete waterproofing system does not deteriorate over time, unlike surface-applied membranes

Hard-Cem

- An integral hardener, Hard-Cem eliminates primary and secondary exposure to harmful silica dust
- Increases abrasion and erosion resistance of concrete

INNOVATION AND DESIGN PROCESS

Kryton's integral products free designers from design constraints found in surface applied products.

Reduce Waste: Our integral waterproofing and durability solutions come in pulpable paper bags and can be added to the concrete plant mixer or truck unopened.

MOST INNOVATIVE PRODUCT AWARD WORLD OF CONCRETE 2003

Krystol Internal Membrane™ (KIM®)

WATERPROOFING ADMIXTURE

Krystol T1® Concrete Waterproofing

SURFACE-APPLIED WATERPROOFING

MOST INNOVATIVE PRODUCT AWARD WORLD OF CONCRETE 2006

Krystol® Waterstop System

CONSTRUCTION JOINTS & DETAILS

Krystol® Leak Repair System

CONCRETE REPAIR

Krystol Mortar Admixture™ (KMA)

WATERPROOFING ADMIXTURE

MOST INNOVATIVE PRODUCT AWARD WORLD OF CONCRETE 2007

Hard-Cem®

INTEGRAL HARDENING ADMIXTURE

TELUS Garden, Vancouver, Canada

TELUS Garden's Office tower has received a LEED Platinum certification and is being heralded as one of the greenest buildings in North America. The 24-floor signature office tower in Vancouver, Canada serves as the TELUS Communications National Headquarters. Kryton's Krystol Internal Membrane (KIM) was used in the shotcrete application on all six levels of below grade parking. Kryton's Waterstop System was also used for construction joints, pipe penetrations and control joints in all below grade exterior wall joints, ensuring a watertight foundation to an impeccable building.

TreePeople Center Rainwater Cistern, Los Angeles, USA

TreePeople Center for Community Forestry, is a non-profit organization that provides sustainable solutions to urban ecosystem problems. The center features a 216,000-gallon underground concrete cistern designed to achieve the US Green Building Council's Leadership in Energy and Environmental Design (LEED) Platinum Rating. Conventional waterproofing membranes deteriorate over time, so the center's owners opted to use Kryton's Krystol Internal Membrane (KIM) and the Krystol Waterstop System for joints. By eliminating costly repairs and maintenance, KIM provides worry-free waterproofing for the life of the cistern that is in line with TreePeople's environmental mandate.

In 2011 Kryton was awarded Project of the Year in the GreenSite Awards for their work on the TreePeople cistern.

CityCenter, MGM Resorts Int'l & Dubai World, Las Vegas, USA

CityCenter in Las Vegas is the largest privately licensed construction project in the United States. The multi-building development sits atop a shallow aquifer and the entire project is interlinked by a sophisticated underground valet tunnel. Kryton's Krystol T1® Concrete Waterproofing was chosen to waterproof the valet tunnel, elevator pits, swimming pools and all other critical below grade areas. The project aimed to achieve LEED Gold certification from the USGBC, and it succeeded. CityCenter is the first hotel, retail district or residential development in Las Vegas to attain this level of LEED.

White River Hydro, White River, Ontario, Canada

The White River Hydro Project is approximately 70 km west of the Town of White River in Ontario, Canada. Hydroelectric concrete hydraulic structures require high resistance to erosion to minimize wearing away of the concrete structure under the action of running water and debris. The Hard-Cem concrete hardening admixture is the perfect solution to this challenge as it extends concrete wear life 2-6 times under harsh conditions. When added to concrete, Hard-Cem's proprietary technology extends the concrete life, improving structural safety, maintaining hydraulic capacity-functionality and extending concrete service life or delaying costly concrete surface repair works.

PROTECTING **GREEN INFRASTRUCTURE**

MARINA ONE, SINGAPORE

The high-density mixed residential and office building complex was designed with a vision of making a "Green Heart" – public green space surrounded by high-rise buildings. The office towers meet the LEED Platinum Pre-certification as a result of their environmentally smart design. Krystol Internal Membrane™ (KIM®) was a key part of that design. KIM was used to waterproof four levels of below grade parking.

SMART CONCRETE SOLUTIONS AND LEED

Kryton's solutions can contribute to achieving valuable LEED points for your building. Here are just a few ways Kryton can help:

Reviewed for accuracy and validation by Edge Consultants. Specialists in LEED, Sustainability, Analysis and Technology Consulting, Edge Consultants are located in Vancouver, Canada.

SUSTAINABLE SITES (SS)

SS Credit Site Development: Protect or Restore Habitat (Up to 2 points)
Intent: To conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity.

Kryton can help reduce site disturbance. Less excavation is required because Krystol Internal Membrane (KIM) waterproofing admixture is added directly to the concrete mix. No additional excavation to accommodate the applicators of surface-applied waterproofing membranes.

SS Credit: Heat Island Reduction (Up to 2 points)
Intent: To minimize effects on microclimates as well as human and wildlife habitats by reducing heat islands.

Heat island mitigation strategies include adding exterior trees and vegetation as well as green roofs. Kryton can help to waterproof green roofs and suspended slabs.

SS Credit: Rainwater Management (up to 3 points)
Intent: To reduce runoff volume and improve water quality by replicating the natural hydrology and water balance of the site. This will be based on historical conditions and undeveloped ecosystems in the region.

Kryton's KIM is commonly used to waterproof concrete storm water runoff cisterns. This Low Impact Development (LID) technique collects water for future use, resulting in both water conservation and reduction of water utility costs.

Kryton headquarters are in Canada. Our solutions are sold by over 50 distributors worldwide. To find a Kryton distributor nearest you, visit our website: www.kryton.com

Kryton's Krystol Internal Membrane (KIM) has achieved the Singapore Green Label product certification

MATERIALS & RESOURCES (MR)

MR Credit: Building Life Cycle Impact Reduction (Up to 6 points)
Intent: To encourage adaptive reuse and optimize the environmental performance of products and materials.

Kryton's products increase both the durability and service life of the concrete structure.

MR Credit: Construction and Demolition Waste Management (Up to 2 points)
Intent: To reduce construction and demolition waste in landfills and incineration facilities by recovering, reusing and recycling materials.

Kryton's pulpable paper bags can be added to the concrete plant mixer or truck unopened, eliminating all packaging waste. Concrete with KIM in it can be recycled after demolition. Concrete with surface-applied membranes cannot be recycled after demolition.

INDOOR ENVIRONMENTAL QUALITY (EQ)

EQ Credit: Low-Emitting Materials (Up to 3 points)
Intent: To reduce concentrations of chemical contaminants that can damage air quality, human health, productivity, and the environment.

Kryton's KIM, Krystol T1, and Hard-Cem contain no volatile organic compounds (VOC) and can replace VOC emitting paints, sealers and membranes. KIM's and Hard-Cem pulpable bags can be added to the concrete plant mixer or truck unopened, eliminating all dust as compared to other dry admixtures.

EQ Credit: Construction Indoor Air QualityManagement Plan (Up to 1 point)
Intent: To promote the well-being of construction workers and building occupants by minimizing indoor air quality problems associated with construction and renovation.

Kryton's Krystol Technology products such as KIM, Krystol T1, and Hard-Cem can replace VOC materials and they do not expose workers to VOCs.

EQ Credit: Indoor Air Quality Assessment (Up to 2 points)
Intent: To establish better indoor air quality in the building after construction and during occupancy.

Kryton's Krystol Technology products such as KIM, Krystol T1, and Hard-Cem are VOC-free and can help meet air quality test requirements.

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