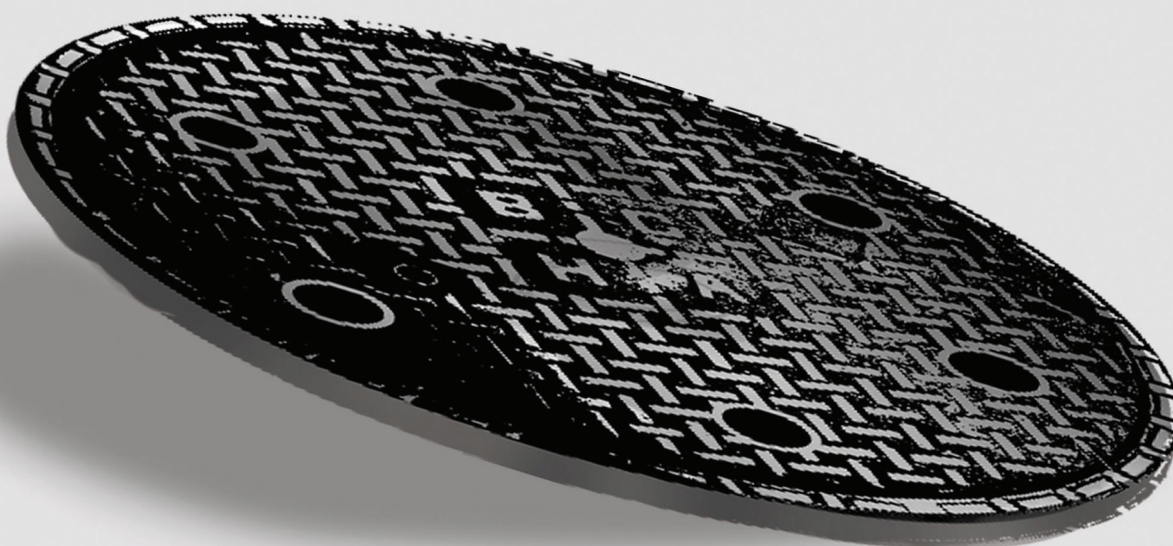


MUG

SOLUTIONS



www.mugsolutions.com

see MUG Solutions in action

MUG Solutions is an award winning company -

MUG Solutions is an award winning company, which has developed and patented the only solution that prevents biohazards (such as used syringes) and debris (roadwash, mud, human waste) from entering through manhole covers. The company has been (and is in the process of being) identified as a standard by some of Canada's largest utility companies.

Without MUG Solutions, utility workers must enter the manhole and remove the biohazards before they can begin work. Currently companies are encountering employees and cleaners refusing to enter manholes with these hazards. There is a significant economic impact and a loss of resources as a result. The monthly cost of **one** employee, plus expenses, preparing to work in a manhole which is not "MUGGED" can be as much as \$20,000. After attaching the MUG Flap™ to the manhole cover, the cost of manhole preparation is negligible, with lid removal and entry steps virtually unchanged.

"It's a phenomenal improvement. It provides an engineering solution to a problem we've been fighting for years. In the areas where they're installed the workers love it; it really mitigates a hazard."

John Leighton of TELUS Communications (the second largest telecommunications company in Canada)

closed



open



Tina Thompson - President



Tina Thompson is the founder and President of MUG Solutions. Tina began MUG Solutions at the foundation of true innovation – that of invention and patenting of new products. It has been an exciting journey to take an idea through its entire development process and to have Tina Thompson and MUG Solutions recognized by Health and Safety professionals.

Prior to MUG Solutions Tina spent a number of years in the IT industry in systems analysis, software implementation and project management. Tina lives in the Vancouver Canada area with her family.

Her favourite saying: Sleep is merely a symptom of caffeine deprivation

Company History

This is an actual photo of a pile of discarded needles that have formed inside a manhole



Increasing urban density has perpetuated the issues involving illicit drug use. Needle Exchange programs found in major cities around the world have return rates as low as 40%, leaving up to 60% of distributed needles unaccounted for. One popular method of disposal for users is through the holes found in manhole lids. In the downtown eastside of Vancouver an average of 60-100 needles per month can be found inside a manhole. It is estimated that 15%+ of urban manholes have been identified to contain needles.

Used needles being dropped into manholes have become a growing safety problem for utility companies. Employees entering these dark, confined workspaces must remove the needles themselves before cleaning companies will clean the workspace. Should a worker become stuck with a used needle, they must begin immediately (within 2 hours) a severe medical regimen, which lasts for six months and involves a program that leaves them ill and uncomfortable for most of the duration. Currently companies are encountering employees and cleaners refusing to enter manholes with these hazards. A corporate recognition of the economic impact and loss of resources has come to the forefront.

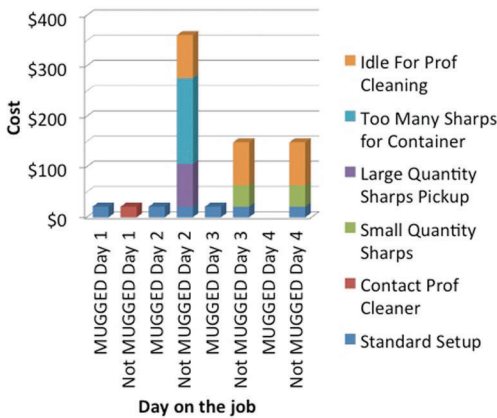
MUG Solutions has developed and patented new products, which provide a deterrent against syringe and other biohazard entry into manhole systems. The development cycle was expedited when TELUS expressed interest in a field trial. By mid-2007 it was clear through the field trial that the product was effective in its goal of deterring biohazards such as needles from entering the manholes. Full development using a reputable Seattle engineering firm (Product Creation Studio), and multiple patent applications (through DWC Law Firm in Seattle) resulted in products to market in 2008.

Follow up inspections of the MUG Solutions' field trial manholes have found them to be completely needle free as well as perfectly clean.

1. Jobsite Preparation - Employee Costs

This graph represents the cost of the employee to prepare the manhole (job site preparation) for beginning the job each day on a job that would normally take 3 days. It is based on an employee loaded rate (employee salary, benefits and vehicle) of \$85/hour which is standard rate for Canada and the US for a splicer or lineman who work in manholes. Note that there is no work required on 4th day if the manhole is “MUGGED” because you do not lose the first day by having to contact the cleaners

Average per day cost for one employee to prepare manhole

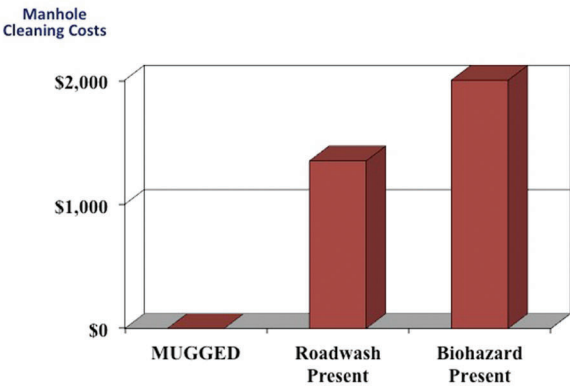


NOTE: costs to be multiplied by the number of employees attending at jobsite

2. Jobsite Preparation - Manhole Cleaning Costs

The average cost for a professional cleaning company to come and clean a manhole without biohazards (such as used syringes) is \$450/hour with a 3 hour minimum (\$1,350 total). If biohazards are present the entire manhole content must be disposed of as biohazard, which raises the cleaning cost. If the manhole is “MUGGED” it remains clean, thereby eliminating all future cleaning costs.

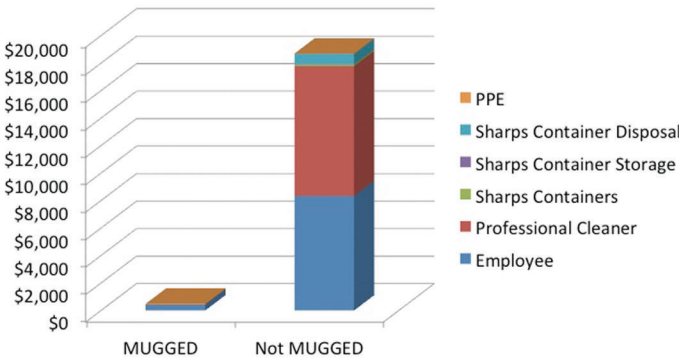
Manhole Cleaning Costs With MUG Flap™ (MUGGED) vs Without



3. Jobsite Preparation - Total Costs

With an average of 7 jobs per month, the costs of an employee working in manholes with biohazards and debris have the potential to be as high as \$18,000-\$20,000 per month. If the manhole is “MUGGED” the job site preparation and cleaning costs are negligible.

Monthly cost of one employee plus expenses working in manholes





MUG Solutions has had its Torsion Spring product (the MUG Flap™) identified as a standard for manhole lids by TELUS Communications.

Field Trial

In the spring/summer of 2007 TELUS Communications Inc requested a product field trial of MUG Solutions' Torsion Spring product. The Health and Safety representative from TELUS identified the manholes in the downtown eastside of Vancouver with the worst history of needles and other biohazards being deposited into them.

The field trial involved 5 cleaned manholes with MUG Solutions' product applied and 5 cleaned manholes used as a comparison. The TELUS manager in charge of the product trial provided the following feedback:

I would like to take this opportunity to thank you for selecting TELUS to conduct a field trial using your product. Your Torsion Spring product has exceeded all of our expectations. It has proven itself to be reliable and cost effective. I tested your product in the Eastside of Vancouver (Hastings) during the months of May 2007 – July, 2007. During the trial I scrutinized ten of our most susceptible manholes. I used your product on 5 manholes and left 5 as a beta test. At the end of my trial there were Zero Sharps in the 5 manholes that the product was installed. This is compared to 519 syringes and 8 crack pipes found in the unprotected manholes

These manholes have been periodically spot checked to validate product effectiveness. Three years later the manholes with MUG Solutions' product are spotlessly clean and biohazard free!

before application



3 years later the manholes remain spotlessly clean





By Alexandra Skinner-Reynolds

Under cover

It's a dirty job — and some don't have to do it anymore — thanks to a new device designed to protect workers in manholes from unsafe encounters underground.

You are in a dark underground room that smells like garbage and human waste. Surrounded by concrete walls, you trudge through muck, your flashlight trained like a beacon on the used needles littering the path in front of you. Grasping metal tongs, you fish out dozens of exposed syringes from the sludge beneath you and all around you, dropping them one by one into a sharps disposal container.

Once the needles are gone, an industrial cleaning company power washes the area and pumps out any remaining biohazardous waste.

Now you can begin your work — repairing telecommunications wires. You are a utility worker, and this is your office.

Fifteen years ago, Tina Thompson's husband came home from his "messy office" one day with a hypodermic needle stuck in his foot. Luckily, he was unharmed. But Thompson was surprised to learn that utility workers like her

husband are continually exposed to biohazardous waste — dumped into their workplaces through the two small openings atop manhole covers.

Today, Thompson is the founder of MUG Solutions and inventor of the patented MUG Flap, a device that blocks waste — specifically syringes — from entering underground workplaces.

The design is seemingly simple, consisting of three parts: a steel housing component welded to the underside of the manhole lid, a spring, and a steel flap with a bubble. When the device is in place, it blocks entry of unwanted debris into the openings on manholes. To gain access to the manhole, utility workers insert removal tools to depress and release the spring-loaded steel flap.

The search for the perfect plug

The idea for these protective devices took shape in the summer of 2001. Thompson was on maternity leave and looking for a

home-based business. At the same time, she was intrigued by the media attention surrounding the needle exchange service for drug users on the downtown eastside.

"My husband said the problem of dirty manholes had gotten worse," she says. "I thought, 'I'm looking for a business to start, and I see the need for a solution.'"

Thompson was able to draw upon her skills from a previous career in information technology. "I am naturally analytical, so I spent the next five to five months looking for existing solutions, performing patent searches, and working on early prototypes."

In 2007, Teles Communications agreed to conduct a trial run using Thompson's product. Ten manhole covers in the back alleys of the downtown eastside received a thorough cleaning and pressure-washing, and then Thompson's MUG flaps were installed on half of them.

Thirty days later, utility workers prised open all 10 lids. Five of the manholes



It's a dirty job —

and some don't have to do it anymore — thanks to a new device designed to protect workers in manholes from unsafe encounters underground.

By Alexandra Skinner-Reynolds - Work Safe Magazine

You are in a dark underground room that smells like garbage and human waste. Surrounded by concrete walls, you trudge through muck, your flashlight trained like a beacon on the used needles littering the path in front of you. Grasping metal tongs, you fish out dozens of exposed syringes from the sludge beneath you and all around you, dropping them one by one into a sharps disposal container.

You are a utility worker, and this is your office.

How a news story sent a Canadian woman's career undercover

Small Business News
Published: August 2009

Fresh needles were simply distributed to drug users to help prevent the spread of HIV/AIDS. So, where were all the old needles going?

A large number of them, it appeared, were distributed down manholes. The needles might have been out of sight of pedestrians on the street, but they were rapidly becoming a health hazard for the utility workers who had to go down into these manholes. Whenever these workers were jabbed by a needle, they immediately had to start a severe medical regimen that lasted for six months.

The MUG Flap has been attached to a number of manhole lids in the back alleys of downtown Vancouver. At every manhole where it is being used no more needles have been found. Tina Thompson of MUG Solutions received the Stevie for Best Canadian Entrepreneur and MUG Solutions was named Best New Company of the year in the 2008 Stevie Awards for Women in Business.

MUG Solutions innovative product keeps workers safe

Vancouver Board of Trade Sounding Board
Published: March/ April 2010-09-10

Needle exchange programs found in major cities around the world have return rates of approximately 40% leaving up to 60% of the millions of distributed needles unaccounted for. One popular method of disposal for users is to drop them through the holes found in manhole covers.

MUG Solutions is an award winning company with products proven to keep manholes spotlessly clean. In 2008, the Canadian Society of Safety Engineers (BC/Yukon Region) honoured MUG Solutions with an award for Outstanding Achievement by a Safety Professional.

"The product was invented to keep workers safe. The ancillary benefit our customers have come to recognize is the economic benefit of not paying for professional cleaners as well as having their utility workers being their job assignments immediately." "It's a win-win" said Tina Thompson.

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- Calendar of Events for Small Business

HOW A NEWS STORY SENT A CANADIAN WOMAN'S CAREER UNDERCOVER

Tina Thompson of MUG Solutions received the Stevie for Best Canadian Entrepreneur, and her Couquille, British Columbia-based company was named Best New Company of the Year, in the 2008 Stevie Awards for Women in Business.

The Idea

The idea that would change Tina Thompson's life began to take form in 2001, just after she had given birth to her second child. Tina had been working in the fast-paced IT industry and was looking for a less frantic career—ideally one where she could work from home.

Around the same time there was lively debate in Vancouver about the Needle Exchange Program for drug users, which had been established there in 1999. Had it been a success or a failure? Curiosity led Tina to research this program, only to discover that the use of the word "exchange" was misleading. Fresh needles were simply distributed to drug users to help prevent the spread of HIV/AIDS. So the question was: Where were all the old needles going?

A large number of them, it appeared, were disappearing down manholes. Again, "disappearing" is a misnomer. The needles might have been out of sight of pedestrians on the street, but they were rapidly becoming a health hazard for the utility workers who had to go down these manholes into dark, confined—and now hazardous—workspaces.

Whenever these workers were jabbed by a needle, they immediately had to start a severe medical regimen that lasted for six months and involved a program that frequently left them either ill or in discomfort. Thompson was already aware of this as her husband had had first-hand experience.

"It was at least 15 years ago and down a manhole that he got a needle stuck in his steel-toed boot, so fortunately no entry into his foot or skin," explained Thompson. "It gave us a scare. When the big discussions were going on about the success/failure of the exchange programs, I asked my husband if the problem of needles in manholes had been alleviated by the exchange. When he told me 'how bad it now was down there, that's when I started to do my research.'"

Read the entire article

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THE VANCOUVER BOARD OF TRADE

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MUG Solutions innovative product keeps workers safe

Needle exchange programs found in major cities around the world have return rates of approximately 40% leaving up to 60% of the millions of distributed needles unaccounted for. One popular method of disposal for users is to drop them through the holes found in manhole covers.

Every day, utility workers in Vancouver and many other cities around the world must be able to contain as many as hundreds of used syringes. If the weather has been below the manhole cover. More often, radioactive, hydrocarbons, commercial runoff up to a foot deep in which the syringes float.

Before beginning their assigned job, the utility workers must collect all of the used syringes. In the process, if they are struck by a used syringe, they are expected to go to the nearest medical treatment.

Occupational safety groups and health organizations list the odds of infection after exposure to per cent for hepatitis B, 10 per cent for hepatitis C and .3-.6 per cent for HIV.

As an alternative to having city crews deal with the syringes, professional cleaning companies such as biohazard at a cost of hundreds (and sometimes thousands) of dollars for each manhole.

But there is also a less expensive solution to the problem. MUG Solutions is an award winning keep manholes spotlessly clean. TELUS Communications conducted a successful field trial and exceeded all of our expectations. It has proven itself to be reliable and cost effective."

In some instances on the Downtown Eastside of Vancouver, MUG Solutions products have been



MUG Solutions Torsion Spring product (the MUG Flap™) has exceeded all of our expectations. It has proven itself to be reliable and cost effective.



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