

## Introduction

Good afternoon everyone;

We are very excited to be here today to get you all inspired to divert construction waste and share ways we can all keep our planet happy and healthy.

Sustainable waste management practises throughout a new build or renovation of a project should be a top priority.

Through proper training, education and commitment, the construction industry can reduce waste produced on sites by large volumes.

We will dive into ways to help you understand strategies to deconstruct waste that is produced on construction sites and share ideas to implement *environmentally focused methods* of waste diversion including salvaging strategies on building new and high efficient builds and renovations.

You will learn the difference between demo, green demo and deconstruction, the local policy around them as well as the invaluable materials that can be salvaged from the initial removal process.

The construction industry is extremely wasteful and creates huge CO2 emissions but what if new buildings had to be adapted and reused or built only with sustainable materials?

I'd like to introduce our first presenter, Adam Corneil of UnBuilders;

Adam is the Founder and CEO of Unbuilders which launched 2 years ago after deconstructing projects for years under his contracting company.

Based in Vancouver, Unbuilders is Canada's foremost deconstruction company. They unbuild homes by hand and salvage almost everything, including irreplaceable old growth lumber, windows, doors, cabinets, fixtures and appliances.

Unbuilders maximizes the material salvage to minimize the cost, hassle and environmental footprint.

Unbuilders are proud to hold the City of Vancouver's highest recorded salvage and recycle rate at 99.2% of a single-family home.

## **SLIDE 2 - Construction Waste**

The volume of construction waste generated worldwide every year, according to a report from Transparency Market Research, will nearly double to 2.2. billion tonnes by the year **20-25**.

If we stand any chance of averting a climate catastrophe, we must start with the construction industry and stop thinking of it in the same way we have been for the last few decades.

Whether it's a passive house to a net zero to a Built Green to a LEED or to a regular build, they all have one thing in common and that is the waste they create.

When it comes to limiting the amount of embodied carbon that the construction industry creates through its waste specifically, we have created systems to sort, recycle and reuse as much of the waste that we are managing on the sites we work on. We will dive into those a bit later on.

### **SLIDE 3: The Beginning**

So why did we start up a construction waste removal company together, you may be wondering.

This business began because we realized a greener approach to construction waste removal was needed.

I have had over 25 years of experience in construction. I have owned and operated my own contracting company for 11 years in Vancouver specializing in heritage home renovations and underpinning buildings and then went to work for a large scale construction company based out of Toronto.

All of the waste removal companies I had used in the past were not focused on the environment so I pitched the idea to Cinci and we jumped on an eye-opening and rewarding journey together.

### **SLIDE 4 - The Problem**

According to *Construction Specifications Canada*, the construction industry is the greatest producer of wood waste, making up 25-45% of all solid waste generated in North America.

More than half of construction and demolition-related debris is recyclable or reusable and doesn't need to end up in landfills but very little is recycled or reused today.

There's a lack of awareness, and some contractors mistakenly assume that environmentally friendly practices will increase their costs, however, waste diversion can reduce disposal costs by up to 30%.

### **SLIDE 5 - Hello landfill.**

Our job consists of going to different landfills. This really opened our eyes to the dramatic amount of construction waste thrown away.

What we witness on a daily basis is honestly heartbreaking.

Repeatedly seeing this really hit a cord and an epiphany came to us; we didn't want this to be our legacy for the next generations to come from the construction industry.

- Depending on how they are designed, landfills produce harmful greenhouse gases like methane and carbon dioxide, as well as leachate, which pollutes groundwater and soil.
- Even with strong preventative measures in place, fugitive emissions from landfills are a concern. In Canada, according to Environment Canada, landfills are still responsible for 20% of national methane emissions.
- Methane is a greenhouse gas that is more harmful than carbon dioxide in terms of its global warming potential because it traps 21 times more heat than a molecule of carbon dioxide.

What we are witnessing is a major building boom and the waste that is produced from these builds is taking up large volumes of space in our local landfills. If it is not managed properly moving forward it will continue to clog them up and be a major polluter for centuries to come.

In an ideal world, all builds and renovations would follow our green approach to waste management practices.

### **SLIDE 6 - Our Dedication**

We service construction sites who have no space for a bin as well as companies who want to build greener and don't want to use one.

How our service works is that we hand sort through endless amounts of garbage bags as well large piles of construction waste by separating recyclables, reusable building material and general garbage.

### **SLIDE 7 - What's in the bag?**

We open up all of the garbage bags on site and in them, will usually be recyclables such as metal, plastic, cardboard, wood, compostables such as a random banana peel or apple core and single-use coffee cups.

We even go to the extent of separating plastic sheets from tape that most contractors use as protection to separating and sorting those wee little plastic bags of nails and screws left from an appliance or cabinet.

It's really eye-opening what this industry throws away.

## **SLIDE 8 - The Right Way**

Once everything is hand sorted and separated, we then live load everything onto our trucks systematically and take these items to their correct place to be responsibly disposed of.

## **SLIDE 9 - Hand-Sorted & Live-Loaded**

Recycling goes to the numerous depot sites, reusable building materials get donated and lastly transfer stations or landfills for general garbage.

## **SLIDE 10 - Landfill Diversion**

Through all this hard work and dedication, the volume of the material we kept out of the landfills for both 2017 and 2018 was 1,963,790 pounds!

That's about 2 million simply by doing it the right way; deconstructing it.

That is the equivalent of 178 of our trucks filled with recyclables and reusable materials was diverted from our local landfills as 1 truck = 11,023 pounds.

Through my time in the construction industry, I was exposed to a large amount of waste categorized as "garbage" on construction sites which wasn't the case.

Let's deconstruct construction waste.

## **SLIDE 11 - Wood Waste**

In a perfect world, less wood would be disposed of from construction builds.

As we stated before it is the single largest item by volume that is thrown away.

Each municipality is different in what they accept as clean wood.

It's important to get a gauge on what is accepted and what is not, make sure you are set up with a proper wood separation area that meets the requirements of the municipality you will be disposing it in.

North Vancouver Transfer station accepts clean pallets and offcuts only but no painted, plywood or glulam is accepted.

While in the Sea to Sky; painted wood, plywood and glulam are accepted in the clean wood pile.

Usable wood can also be donated to non for profits, schools, and artists, we'll dive into that a bit later.

## **SLIDE 12 - Brick, Stone, and Concrete**

Brick, Stone, and Concrete can get broken down and remade back into the materials they came from and are also used as additives in new products.

In North Vancouver you can dispose of these at Head Water Management where they will get reused instead of throwing them in the landfill.

It's important that we support companies with a circular economy approach.

## **SLIDE 13 - Carpet Recycling**

Did you know that up to 80 million pounds of used carpet and underlay are sent to Metro Vancouver's landfills each year?

Carpet can be recycled, reducing the need for oil to produce new carpet and underlay.

The Coquitlam Transfer station is now accepting carpet as recycling but we are hoping every municipality will start to accept it.

We also recommend that you connect with your local municipality and request the ability to recycle your carpet rather than dispose of it in the landfill.

#### **SLIDE 14 - Metal Recycling**

Large amounts of metal such as rebar, metal banding, steel studs, and all other metal products can get taken to either a metal recycling scrap yard or the general metal section at all transfer stations.

Here's a tip: save your metal, then take it to a scrap yard and then you have end of the week beers with your crew, it's a win-win!

#### **SLIDE 15 - Cardboard & Mixed Paper**

Packaging is huge in the construction industry, fixtures, electronics, furniture, appliances, you name it, whatever goes into a house usually comes packaged in cardboard.



Cardboard is one of the easiest items to recycle but that being said if there was a large reduction in the amount used in packaging that would be beneficial for reducing our carbon output as well.

### **SLIDE 16 - Plastic, hard, soft and styrofoam**

Did you know that plastic can take up to 1000 years to break down? Plastic waste takes way too long to decompose.

Because styrofoam is so well known for being a major drain on the environment, it is luckily disappearing from our everyday lives but not quick enough.

We still use foam cups for hot beverages, take-out containers and we still receive foam padding in the boxes of large appliances.

Styrofoam is made with polystyrene, a petroleum-based product, so it is not remotely sustainable.

Styrofoam does not biodegrade, meaning it takes up space in landfills or ends up in our oceans.

Mostly every transfer station or landfill has a great set up for common soft and hard plastics including styrofoam.

### **SLIDE 17 - Hard to recycle plastics**

The “hard to recycle” or “headache” plastics that are found on construction sites and that cannot be recycled at a local transfer station or landfill with are - EPS (foam sheets

and blocks), black foam, thicker green plastic banding as well as black or white strapping, shrink wrap, as well as large amounts of vapour barrier poly

Any plastic that is dirty, for example has dirt on it, or paint is deemed garbage.

### **SLIDE 18 - WCS**

These hard to recycle materials can be taken to our partner and diversion champions WCS in North Vancouver.

They will downstream it to their partners who will either resell it to plastic buyers and other companies who melt it down and make plastic pellets.

In 2017, we diverted around 3360 pounds of mixed, hard to recycle plastics. This equals 56 super sacks.

1 super sack is equivalent to one cubic meter therefore we managed to keep 56 cubic meters of mixed plastics alone out of the landfill.

We are continuing to raise awareness about these hard to recycle plastics with associations, manufacturers, local municipalities and of course the government to either find a solution for them as soon as possible or have them banned completely.

### **SLIDE 19 - Glass**

One of the projects we worked on was removing large amounts of glass from a window manufacturer which went out of business. Our solution was to get bins strictly for glass.

The bin company we worked with took the glass to Envirocorp Recycling which reuse the glass for sandblasting as well as road base.

We ended up diverting 17 tonnes from the landfill just by doing a little research and working with like-minded businesses.

### **SLIDE 20 - Drywall**

Gypsum or drywall can essentially be recycled forever with no degradation to the material.

Gypsum facilities keep the material in the supply chain, reducing the need to extract virgin material which helps to preserve valuable natural resources for generations to come.

### **SLIDE 21 - Deconstructed**

It's beneficial to deconstruct your projects properly so that the materials will end up in a usable condition to donate and won't end up in the landfill.

Squamish ReBuild, a not-for-profit, has diverted 900,000 lbs to date from the Squamish landfill just by receiving reusable building materials and reselling them to the community.

There is a huge opportunity for these items to be reused and this diversion rate is such a positive result.

### **SLIDE 22 - Reusable Building Materials**

You can donate any reusable building materials such as windows, doors, lumber, plywood, light fixtures, appliances, furniture, sinks and cabinets to not for profits such as:

ReStore part of Habitat for Humanity, Urban RePurpose, Whistler Rebuild-It Centre, and Squamish ReBuild.

You can even reach out to schools who may want to practice building with these materials or connect to artists who will create something beautiful and thought-provoking from your waste.

### **SLIDE 23 - Bear Aware**

Between Jan. 1 and Oct. 17 of 2019, 521 black bears were destroyed due to mismanagement of waste.

When it comes to keeping a site clean and green we always need to be aware of the critters who coexist around us. Crows, ravens, seagulls, chipmunks, squirrels, mice and rats will chew or pick through the garbage bags left out on site. These will also attract other larger animals such as raccoons, coyotes and bears.

We always recommend an actual bear-proof bin for organics, which is able to be locked and can be rolled away and stored safely during the night. This allows the organics to be disposed of properly allowing them to go into composting and ultimately turn back into usable soil.

But the easiest thing you can do with food on site is; pack in and pack out.

### **SLIDE 24 - Recycling at your fingertips!**

Whenever you feel stuck, as all this can become overwhelming depending on what you need to recycle; we highly recommend downloading the Recycling Council of BC's Recyclepedia app.

It's a quick and simple tool that helps you find more than 1,000 drop-off locations and recycling options for over 70 materials or products across the province.

### **SLIDE 25 - What is garbage anyway?**

Garbage is made up of a wide variety of single-use materials, broken materials or anything that is contaminated or can not be recycled.

One of the companies we work with designed this garbage bin as it allows the crews to think twice before they throw certain materials away.

Signage is key on your site, labelling areas or spaces with proper information on where crew can put certain materials in places creates a huge impact.

You must be wondering how construction waste could be presorted to avoid the landfill aren't you? Well, we came up with a very simple but extremely effective solution.

### **SLIDE 26 - Onsite Recycling Stations**

The more sites we visited and the more bags we went through, we started to see a pattern of recyclables thrown away since there weren't any tools, leadership or policies implemented on sites.

So we came up with this idea which actually won a Small Business BC award for best concept;

We created and implemented these onsite recycling stations including proper use training to simplify job site pre-sorting.

The concept is very simple but highly effective.

The recycling stations are labelled with; metal, cardboard and plastic.

This gives the crews the opportunity to not throw materials into a general bin or pile but rather into its proper place.

From every recycling station we service we end up diverting 300 or more pounds of recyclables per service.

### **SLIDE 27 - Recycling Stations Rule**

One of our biggest wins was a construction company that used a bin strictly for garbage and then had our recycling stations in front of the bin so crews had a chance to recycle vs. throw everything into one bin headed for the landfill.

We serviced this site 5 times and diverted 2.5 tonnes of recyclables from entering the landfill.

A couple of recommendations would have been to have one bin or space utilized only for clean wood and the other was to have a strict reusable mug policy as we found way too many single use disposable coffee cups in their waste.

This all would have maximed landfill diversion.

### **SLIDE 28 - Be the Change**

All of us in this room have a huge opportunity to shift the way the construction industry discards materials and Chris and I have seen the dramatic results these recycling stations have created.

It's infectious and crews are very excited to know they are making a difference.

Our mission is to have recycling stations be the norm on construction sites.

We dream big and so can you.

### **SLIDE 29 - Landfill Diversion Hero**

This is Joe, from Adisa Homes. We worked very closely with his team on designing the perfect waste area on his site.

### **SLIDE 30 - Adisa Set Up**

The one area that he put his foot down on is waste management.

He knew this was a perfect place to lead by example and show his clients and colleagues that we can all do much better for basically no extra cost.

His hope is that his company can be an inspiration to others in the industry, and remove the stigma attached to green building practices being more expensive.

### **SLIDE 31 - Taking the Lead**

It's not just contractors who want to see these efforts, it's also the clients they work with too.

People are becoming very aware of the waste problem that the construction industry is creating.

By having strong leadership that's focussed on waste management on your project, clients will benefit greatly by reducing their waste costs, meeting regulations, and you will be able to communicate that you are minimizing landfill waste with your industry peers plus you can share your efforts online too.

We really appreciate it when Naikoon Contracting shares their monthly recycling results on Instagram, it really starts a dialogue and that leadership is very important to have in the construction industry.

### **SLIDE 32 - What can YOU do?**

Did you know that Metro Vancouverites threw out 1.1 billion single-use items last year and an estimated 2.6 million cups a week.

Small acts such as investing in a reusable mug will save tons of Tim Hortons and Starbucks cups from hitting the landfill.

We dispose of many contaminated single-use coffee cups from construction sites and it honestly drives us crazy.

We always push the companies we work with as well as our online community to implement a reusable mug policy on site.

### **SLIDE 33 - what can industry do**

We have the ability and responsibility to provide solutions that minimize the climate impact of the structures we design and build.



Here are ideas that you can implement right away:

***Number 1. Encourage designs that cause less waste;***

Whenever possible, look to salvage materials like brick, metals, or wood.

Salvaged materials typically have a much lower embodied carbon footprint than newly manufactured materials, since the carbon to manufacture them has already been spent.

With reclaimed wood in particular, you not only save the energy that would have been spent in cutting the tree down, transporting it to the mill, and processing it, but the tree you never cut down is still doing the work of sequestering carbon.

***Number 2. Research your building materials;***

Can they be recycled? If not, can you speak with the rep or the manufacturer to redesign the materials so it can?

Or can you source another product that is more sustainable?

***Number 3. Avoid over-ordering;***

If available, use computer software to help accurately estimate required quantities.

You can also minimize waste; particularly in wood-framed residential projects, designing in modules.

Think in common sizes for common materials like 4x8 plywood, 12-foot gypsum boards, 2-foot increments for wood framing, and pre-cut structural members.

***Number 4. Create expectations for waste management practices;*** with your crew at the beginning of a job. Proper training will help your crew determine what can be salvaged and what must be thrown away. Also ask your suppliers if they will take back packaging and if so, find out what are they doing with it

***Number 5. Unbuild vs. demo;*** unbuild buildings rather than knock them down to increase the amount of undamaged materials that can be salvaged, also dismantle part of the renovation so materials can be repurposed or donated

**Number 6. Create a zero waste policy;** dedicate a site area for diverting materials such as metal, cardboard, plastics including organics and please implement a reusable mug policy on site and in your office

**Number 7. Do a waste audit;** collect all your materials in a clear bag and at the end of the week go through what you have. Try and figure out what your garbage is and see how you can improve it

**Number 8. Work with trades who align with your values and the planets;** ask them how they manage waste that they create on your site

**Number 9. Coordinate a shoreline cleanup or a similar event;** in your local area that focuses on cleaning up particular natural areas of your community. Connect with organizations such as Vancouver Surfrider or The Great Canadian Shoreline Cleanup.

Cleaning a beach improves the ocean ecosystem by making sure that none of the trash which includes plastics kills marine life or is toxic enough to disrupt the marine life cycle.

A beach clean up is also an opportunity to gather fresh data about the state of our coasts and the types of trash that pollutes them. By identifying the most harmful debris items, environmental groups can find ways to stop them from entering the ocean or being littered again and also be vocal about what items need to be banned and taken out of production

And lastly;

**Number 9. Be proactive;** by learning and connecting with your local politicians and industry associations, we need more voices like you in this industry to create positive change on waste management

**SLIDE 34 - quote for if it can't be reused, Pete Seeger - Cinci**

This is such an impactful quote:

“If it can't be reduced, reused, repaired, rebuilt, refurbished, refinished, resold, recycled or composted, then it should be restricted, redesigned or removed from production.”

While we can all agree we throw too much away, everyone has a different idea on what has value and what doesn't.

We throw away far too much because it is easier and too few of us reuse because we've been taught newer is better.

It's important to think of waste, not as a problem, but as a natural resource waiting to be harvested.

The construction industry has to become zero waste, is it possible, we all have to try our absolute hardest to make sure that it does.

**SLIDE 35 - Thank you! Chris**

Through all this, we are seeing a new standard in construction waste management and the deconstruction of buildings emerging.

Let's all take the steps needed to push forward and continually reduce our carbon footprint by regulating the amount of embodied carbon that we are responsible for entering our environment.

Thank you!