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# Technical Article

Cleasby Manufacturing Inc.

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## **Tear-Off Season**

### **Make Your Next Tear-Off Job More Profitable**

by Karen and John Cleasby, Western Roofing Magazine, March/April 2007

*(Editor's Note: Karen and John Cleasby are a brother and sister team whom represent Cleasby Manufacturing's third generation of Cleasby's. Together, they share over 37 years of experience working at the manufacturing level. Product development, technical support, safety training, sales and marketing are just a few of the responsibilities they share. John or Karen may be reached at (800) 253-2729.)*

"Labor," that costly five-letter word we are all too familiar with, is the single largest line item expense on any tear-off bid. And the key to reducing this direct labor expense is to mechanize the job using the proper equipment and adhering to a systematic plan for removing the old roof.

Words from the experienced also warn against handling the same material more than once; every time the material is handled it costs you time and money. "Keep it moving, and never lay it down until it lands in the dumpster."

### **Remove Gravel with Power Broom**

For one commercial roofing company a systematic plan begins with removing the gravel from the roof using a motorized power broom. "You can complete the job in half the time it normally takes as apposed to using hand gravel brooms and manual labor." There are several different models to choose from beginning with hand-held units well suited for small commercial jobs and some residential work: ideal for getting in those hard to reach areas, and light enough for transporting to the roof without the use of a hoist or crane. For those that remove gravel on a regular basis a unit in which its sole purpose is to function as a power broom may be best. These units are simple to operate since there are no removable attachments. Large flat commercial work is more demanding and will require a power broom. Use caution when operating a power broom - never lift the sweeper wheels of the broom off the deck while the brush is rotating. Failure to comply will cause the sweeper to kick back and it could knock the operator down causing sever personal injury.

To remove gravel from the roof simply angle the power broom head so it will windrow the gravel making it easy for the guys to scoop up and load into wheelbarrows and dump down the trash chute system.

### **Cut Roof with Roof Saw**

Once the gravel has been removed from the roof the labor intensive process of cutting up the old roof begins. Using a roof saw, cut the roof in a checker board fashion for ease of removal. Remember to cut the roof into small manageable pieces that will fit down a 30" diameter enclosed trash chute system (note: when you follow-up with a powered roof remover watch how quickly the "checker board cuts" come off).

When purchasing a roof saw, make sure it is equipped with a remote air intake. Engines require clean air to run smoothly, otherwise they tend to heat up and break down. The remote air intake minimizes this risk by providing a constant supply of clean air to the engine. We also strongly encourage upgrading the engine to the highest

horse power you can afford. The higher the horsepower the easier it is for the engine to cut through the roof, and if the engine doesn't have to work as hard it will last longer providing it is routinely serviced and maintained. This includes keeping the cooling fins on the engine head clean. The leading cause of engine failure is fins packed with dust and debris - when impacted, the engine will heat up and cook the internal valves. When the engine is off and has cooled, use a brush or a compressor to blow dust and debris out. Do this as often as necessary.

There are options when selecting the cutting blades on a roof saw. All roof saw blades are made with carbide inserts, the portion of the blade that is durable enough to cut the roofing. What you need to consider is expense and quality of cut. Standard carbide blades are the least expensive and understandably, the most widely used. Posa Trac blades are considerably more expensive but give a much smoother cut. There is the Posa Trac I blade that is actually two blades, a straight blade and an offset blade that work together to make a smooth cut. The Posa Trac II blade is slightly different in that it is one solid piece with four replaceable carbide tips. The advantage is that you need only replace the tips instead of the whole blade. Tips are half the cost of a standard carbide blade. As an aside, the life of a blade, regardless of model, will vary taking into account the composition of the roof, how often it is used, and whether or not it is being handled correctly. For example, never cut deeper into the roofing than the length of the carbide insert, otherwise, you will be hitting on the raw steel portion of the blade which will wear the blade out faster.

Roof saws are generally equipped with a depth control lever that gives the user control over the depth of the blade cuts. Since all roofs are different, it is impossible to standardize how deep a blade will cut so look for a roof saw that does indeed have a depth control lever. Another critical consideration is whether or not to use a single or double bladed roof saw. The advantage of a double-bladed saw, of course, is that you double the number of cuts reducing the amount of time it takes to cut up the roof. However, no roof is completely level so if the blades are set to cut at one depth and the user hits a higher point under one blade and not the other, then one blade may penetrate the roof deck while the other cuts the membranes perfectly. We cannot emphasize enough the critical need to NOT set the blade(s) depth to cut through to the roof deck. It not only damages the deck, but it also poses a safety hazard to those in close proximity. One man was injured, when, using a roof saw, he cut through to the roof deck and broke the saw blade flinging a piece of it up and severely cutting him.

### **Pry the Roof up with Powered Roof Remover**

Once the roof has been cut up the process of prying the material loose begins. Use a powered roof remover for commercial work to expedite this process. The roof remover pries the old roofing material loose and lifts it off of the roof deck. When you have accumulated a manageable load lift it onto a 4-wheel cart and haul it to the trash chute system for off loading. Equipment manufacturers agree that the powered roof remover does the work of six to eight men and reduces the costs of hand labor by 50% or more. Our roof remover, the hydraulic Hurricane, weighs 750 lbs. so be sure to verify the roof's weight limits before beginning any job.

For lighter duty jobs, the wheeled tear-off bar may be all you need. Equipped with two grip handles to maximize one's leverage, simply push the blade under the roofing material and then push down on the handles to pry the roof up. The added leverage these handles provide minimizes the back strain on the user; a draw back when using tear-off spades, your other option. With wheeled tear-off bars you can choose either a 10" steel flat blade or a 10" shingle blade. Blades are removable and replaceable.

There is also the roof ripper bar which is perfectly suited for residential work and for getting in those hard to reach areas. Made of heat tempered spring steel with T-handle or D-handle, this bar removes felt and shakes in one easy operation.

To speed the process of removing nails use a nail bar. Its long steel handle makes nail removal easy on the user. No more stooping over for hours on end using a pry bar. Nail bars are also ideal for removing shingles, cap sheets, and insulation.

### **Transport Debris with 4-Wheel Trailer**

Now that the old roof has been separated from the roof deck it is time to begin the process of removing the remaining debris. A 4-wheel trailer with dump tray makes this part of the journey fast and easy. On large commercial jobs, several trailers can be hooked together and towed with an all terrain vehicle. Most 4-wheel trailers are equipped with a brake bar so they can be used independent of an all terrain vehicle. Wheelbarrows are also a

viable option. Choose between single wheeled and 2-wheeled wheelbarrows. Single wheeled units are easier to maneuver and the 2-wheeled offer more stability. Any cart or wheelbarrow is susceptible to flat tires especially in construction zones, and aside from being inconvenient, it can prove costly in terms of downtime and tire replacements. Eliminate this risk and opt for airless tires.

### **Remove Debris from Rooftop by way of Trash Chute System**

The end of the journey is in sight, and the debris is ready to be offloaded. Aside from the fact that OSHA requires the use of an enclosed debris chute system, it is the fastest and cleanest method for removing the debris. It keeps the materials flowing through to the dump truck or trailer; eliminates scattered debris on the ground, and naturally, any risks associated with uncontrolled falling debris. Trash chute systems can be used on window/parapet mountings, scaffold mountings, flat roof mountings. Chute sections are constructed of a flexible material for durability and easy storage. To store, just unhook the hardware and lay flat.

When setting up the trash chute system always use cantilevered supports; 4" x 6" or 4" x 8" wood or steel beams will due. These supports must be anchored to solid construction such as load bearing beams or floor/roof joists. These supports must be capable of suspending the weight of the hopper and the aggregate total of the trash chute plus a three to one safety factor (28 lbs. per section). Further secure the chutes by running a cable through the chutes from the cantilever supports to the ground; this will prevent the wind from blowing the chutes around. However, do not secure the cable to the dump truck or trailer. It is an accident waiting to happen should someone drive off with the truck. As an added safety precaution, anchor every tenth chute directly to the building. Either run a cable through a window and attach it to a secure part of the building or tie it off to the fire escape or the roof. If a chute should back up with debris, the added stress may strain the system and cause it to collapse. To avoid any complications of this nature, make sure the debris is cut up in small pieces so it won't get caught in the chute system. We recommend nothing greater than 24" and suggest that the debris be hand fed into the chute system, don't dump it in. This will reduce the chance of materials getting caught inside and backing up. There should be absolutely no smoking, no open flame, no welding or cutting, nor should there be any ignition source present within 20' of the debris box and trash chute system. Debris and chutes can be combustible.

Single story jobs obviously don't require the use of a full trash chute system. Some contractors will construct a wood slide to transfer the debris to the debris box. If built right, it will support the weight of the tear-off debris, and it won't rip like tarps. Tarps, though commonly used, are not recommended for sliding debris from the rooftop to the debris box because they tend to rip especially if the debris contains nails.

Hard to believe, but this is it. An outline for a tear-off job, start to finish. Note that this systematic approach relies heavily on the use of equipment, not manual labor, and though equipment is thought of as expensive and not always necessary, it will ultimately boost bottom line profits. Think of it in these terms: when you compare the initial expense of equipment to that of the repetitive purchasing of hand tools including tear-off spades, pry bars, and axes coupled with many hours of manual labor how much money have you really saved? Time is money, and the competitive bid wins the job. •••