



BEST PRACTICES IN SAFE RECYCLING PROGRAMS

WHO IS THIS FOR?

Anyone interested in making or keeping their recycling program safe and effective.

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MAKE SAFETY A PRIORITY OF YOUR PROGRAM.

SAFETY AS A GOAL, NOT A REACTION Successful safety programs are those that occur continuously as part of a system. To get employees to fully buy into your safety program, it needs to be understood to be part of your daily operations (“this is how we do business here”). If employees feel that your safety plan is a temporary reaction to an employee injury, they may be less likely to adopt safe work practices into their daily routine.

Sometimes it takes a worker injury to get you to wake up to the issue of safety, and how important it is. But once it does, safety has to quickly become integrated into the daily operation and mind set. If employees perceive this as a temporary trend, they will adopt safety accordingly (i.e. grudgingly and half heartedly).

SAFER RECYCLING MAY BE MORE EFFECTIVE Recycling has to work for everyone in the process. If it doesn’t, somewhere in the process many recyclable materials are going to be discarded as trash. Part of making that system work is ensuring that recycling is safe and efficient for the folks collecting the material. If the collection system is safe and roughly as convenient and efficient as the alternative (throwing that stuff into the trash), collection crews are more likely to collect recyclables.

If your trash operation is considerably more safe and convenient

than your recycling operation, which is often the case in the early startup phase of any recycling program (e.g. trash emptied hydraulically from dumpsters, recycling collected manually in bags or remedial collection bins), too often recyclables will find their way into the trash.

Remember, the top goal, or at least one of the top goals of your employees, is to provide for themselves and their families. Doing so means getting through the day alive and substantially unharmed. If your collection system conflicts with their personal safety goal, you are likely to have conflict with your employee and their performance.

There are too many opportunities to discard recyclables into the trash. Unless you have an endless enforcement or supervisory budget, you are not going to be able to watch employees 24/7. When you’re not looking they are going to cut corners on things that are unsafe.

This especially becomes an issue when things get chaotic and schedules get tight. The academic schedule has several natural ebbs and flows in it and several times throughout the year when the schedule gets frantic (e.g. when students arrive in the fall, when students move out in the spring, the campus is preparing for commencement, during the transition between

the regular school year and summer conferences, and any time there is a snowstorm or other weather event that disrupts regular campus life]. During those periods, there is often less time to complete routine tasks and if your recycling collection system is not as safe and as efficient as your trash collection, you will see recycling suffer. Unfortunately, some of those times are also when you have significant surges of recyclables (e.g. all the cardboard when the students move in, or all the papers and old notes when they leave at the end of the year) and can least afford to have your recycling collection suffer.

THE COST OF SAFETY AND THE LACK THEREOF Safety comes at a cost. That cost may be in the form of personal protective equipment like reflective vests, eyewear, and puncture-resistant nitrile gloves. Or, it might be a more expensive piece of capital equipment like a hydraulic lift on your collection truck.

But keep in mind that the lack of safety also comes at a cost:

- There is the cost of recyclables ending up in the trash and the higher disposal costs associated with that.
- There is the labor cost that comes with inefficient collection. Does your lack of safety equipment force your employees to work slower to stay safe? Has your collection program left a lot of the employees “a little bit” injured, not enough that they are filing comp claims or taking sick time, but enough so that they have to go slower to compensate? Could some of that labor cost have been avoided by investing in the proper safety equipment?
- There are also tremendous costs that come from worker injuries. There are workers compensation claims and the higher premiums that accompany workplace injuries.

However, such premiums are often only part of the cost. There are potential lawsuits and the legal cost of defending those lawsuits. There is the labor cost of overtime or temporary help to cover an employee’s shift while they are out with an injury. And keep in mind that those costs might not disappear when an employee returns to work. Frequently, employees will be cleared to return to “light duty” and any tasks that don’t fit into “light duty” will still need to be made up by other employees or temporary help.

All of those various costs can accumulate quickly. In the end, the cost of the injury may prove to be orders of magnitude more expensive for the institution than the cost of the safety equipment.

One thing to consider is how to align costs and expenses. One of the reasons that safety is sometimes not taken more seriously is that often the cost of protective equipment is taken out of the operations budget, but the injury-related costs are taken out of some other administrative HR or legal budget. Have you considered aligning your budgets so that decision-makers see both safety and risk together?

SIGNS OF UNSAFE RECYCLING PROGRAMS If you are collecting in bags, there are several pinch points associated with lifting, carrying, and throwing bags which can quickly lead to worker injury when done repeatedly. Look instead to something like semi-automated collection carts in which material can be transported more effectively without lifting it and from which material can be emptied hydraulically into a truck or compactor.

If you are loading material into a truck, do you have a hydraulic cart dumper to empty the contents of a container into a hydraulic-dumping truck? Do you at least have a hydraulic

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tailgate to hoist containers into the back of the truck? If not, how much manual lifting is your crew doing?

Every 100 tons per year of recyclables that you collect is almost 770 lbs per day of manual lifting [assuming that you were collecting 5 days/week all year long]. If that lifting is not happening safely, that is a lot of wear and tear on joints, tendons, and vertebrae over time.

SHARP EDGES, PINCH POINTS, AND OTHER CONSIDERATIONS

Every bin has a few additional considerations to pay attention to:

- Are there any sharp edges to worry about? If someone custom cuts restrictive lids into a container, there can often be sharp edges left that can cut or snag. Be sure to look for containers with smooth-openings and smooth/sand down all rough edges.
- Another thing to look for is pinch points. If you have hinged doors or lids, look at the hinge points. Are they strong enough that they will keep the doors closing smoothly? Are there enough hinges that they will prevent pinch points?

STREAMS & SAFE CAPACITIES When you consider capacities, consider a few things. What are the contents that need to be emptied out of the bin? How does the bin unload? Do you have to lift the contents out the top, or is there a door on the front or side of the bin that you empty. If the bin unloads from the top, how high do you have to lift those contents to get them out of the bin? All that will impact the capacity that you can safely lift

out of the bin.

The other thing that will impact the capacity of the bin and safe lifting are the contents. How heavy and dense are the materials you are lifting! For example, a safe-lifting capacity for low density materials like wadded up paper towels in a bathroom trash bin may be very different than the lifting capacity for high density materials like office paper or food waste.

SAFE LIFTING TECHNIQUES & TRAINING

Most people have heard the tired saying “lift with your knees and not with your back.” While it may be a tired turn of phrase, this tried and true bit of advice can help prevent injury. We’ve all heard that phrase, but do we actually do it? Does everyone completely understand it? Without patronizing your personnel, review these safe lifting diagrams reiterating that ultimately, you want everyone to get home safely at the end of the day, not to get hurt on the job. For more reading on that topic: <http://blog.max-r.net/2012/02/16/getting-home-safely/>

Many collection bins on the market, especially public area bins, do not allow for safe lifting due to their top-unloading design. The problem with top-unloading bins is that they require an unsafe vertical “dead lift” to get the liner and contents out of the bin.

Public area containers are typically designed not to tip over, meaning you have to dead lift the contents all the way out to clear the top lip of the container. That means lifting twice the height of the container. A 3 ½ ft. high top-unloading bin requires

SAFE CAPACITY RECOMMENDATIONS BY STREAM

CAPACITY [GAL]	MIXED PAPER	LOOSE NEWSPAPER	PLASTIC BOTTLES [PET]	MIXED PLASTIC	GLASS BOTTLES	ALUMINUM CANS	FOOD SCRAPS [MIXED]	GARBAGE
12	24	24	2	3	29	5	57	9
22	44	44	4	5	54	10	104	17
26	52	51	5	6	64	12	123	20
32	64	63	6	8	78	14	151	25
38	76	75	7	9	93	17	179	29
45	90	89	8	11	110	20	212	35
55	110	109	10	14	135	25	259	42

a 7 ft. high dead lift to get the contents out of the container. That can be a significant issue from a safety perspective.

Consider collection containers that have front opening doors, so that an inner liner can be slid out and lifted safely to be dumped.

Reviewing these simple techniques periodically can go a long way toward maintaining a safe recycling program. When you are developing your training program don't forget new employees. New employees will "imprint" on the culture of your organization during their first few days on the job. If you are trying to convey that safety is "part of how we do business here" you will convey that message most effectively by ensuring that it is something that they see and hear from the moment they walk on the job.

Finally, observe your peer's or personnel's lifting habits. Remind them about safe lifting techniques. However, remember to be tactful in how you approach them. You want to reinforce, not preach or nag. They may not always thank you directly, but remember that all of you benefit in some way from your program's success.

FINANCIAL JUSTIFICATIONS FOR TAKING ACTION

WORKERS COMPENSATION ISSUES Worker's compensation is a form of insurance and is essentially a form of collective bargaining related to worker injury. Employees give up certain rights to sue in exchange for some fixed certainty that workplace injuries will be compensated at a certain rate. And because there are fixed payment terms for each injury, employers, and their insurers have certainty that they can budget for. However, keep in mind that the system is not designed to lose money. Every injury that occurs means that those costs have to be made up via higher premiums. When your site has workplace injuries expect to pay higher premiums for your worker's compensation insurance.

RISK MANAGEMENT The other cost impact of safety is the impact on public relations and promotions. For the percentage of the population that is apathetic about recycling, negative stories about recycling reinforce their apathy, and you will have to spend more time and money on promotional efforts to overcome those negative stories. And when there is a recycling-related injury, be prepared that the story will almost always blame recycling, not the unsafe lifting. Imagine a scenario in which your custodian is awkwardly lifting a load of cardboard out to the dumpster and a sudden gust of wind catches

the cardboard and wrenches the back and shoulder of the custodian, causing them to miss months of work. If the student paper or union newsletter picks up the story, the headline will never read "custodian injured by awkward lifting technique combined with sudden movement of air particles following path of high pressure to low pressure." It will undoubtedly read something to the effect of "recycling injures custodian" or "custodian injured recycling."

TAKEAWAYS

- Safety needs to be part of the routine, part of the culture. "This is how we work."
- Safe, relatively convenient waste & recycling operations may be more effective.
- Forecast "surges" in personnel's required duties and schedule reinforcements when necessary.
- Align your crew's goals with that of your program. Their safety should be a priority.
- Taking appropriate measures to ensure safety often makes financial sense too.

GLOSSARY OF TERMS

PARALLEL ACCESS Having the same system for both trash and recycling. Involves co-locating the trash and recycling in visibly different well-labeled bins.

- If you have a trash can without an adjoining recycling bin, too often recyclables will be thrown into the trash.
- If you have a recycling bin without an adjoining trash can, too often trash will be thrown into the recycling, contaminating the recycling and resulting in an entire bin full of recyclables being discarded as trash.

RESTRICTIVE OPENINGS Having different shaped openings that easily communicate which material goes into which container.

- Typically involves long thin slot for paper and round hole for bottles & cans.
- Size of bottle and can hole can be a big issue. Too small and it can't accommodate a standard 2-liter bottle. Too big and it's not obvious that it's a restrictive opening.

- Restrictive slots can also be cut into cardboard dumpsters (a much thicker and wider version of the paper slot). Encourages or forces people to flatten their cardboard box to get it into the dumpster.

SEMI-AUTOMATED CARTS Made by several different companies [e.g. Toter].

- Typically come in some variation of 90-gallon, 60-gallon, and 30-gallon sizes.
- Designed to be dumped hydraulically by special cart dumper attached to a truck or compactor. There are also some stand-alone cart dumpers that can be used to dump into other containers.
- Typically have two large rear wheels that can be tilted back onto like a handtruck. Most come with only the two rear wheels, but some [e.g. Toter] are available with front casters so they can be wheeled without tipping.

DUAL STREAM Collecting recyclables in two categories, typically one for mixed paper (including cardboard) and one for commingled bottles & cans.

DUAL STREAM PLUS A modified version of dual stream in which cardboard is kept separate from either paper or bottles & cans.

SINGLE STREAM Collecting all recyclables (paper, cardboard and bottles & cans) together in one bin and sending to special facility to sort it all out.

ABOUT THE AUTHOR

ROGER GUZOWSKI Roger has spent more than 20 years in the recycling field and has managed award-winning campus recycling programs in both Massachusetts and California. Throughout that time, Roger has been one of the more prolific public speakers about recycling in the country, having presented in almost every region of the country and for a broad spectrum of organizations. Roger has also been a frequent contributor to several recycling list-servs and an author or contributor to several publications and primary writer of Max-R's recycle blog. Roger has played a leadership role in several state and national collegiate recycling councils, and has been actively involved with a variety of recycling organizations including MassRecycle, the California Resource Recovery Association, the Northeast Resource Recovery Association, and the National Recycling Coalition.